DEPRESSION, EMOTION AND FRUSTRATION TOLERANCE IN ADOLESCENT DELIBERATE SELF-HARM.

CHRISTOPHER J. HEWITT

DOCTORATE IN CLINICAL PSYCHOLOGY
THE UNIVERSITY OF EDINBURGH
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ABSTRACT

Adolescent deliberate self-harm (DSH) constitutes an important and growing problem for health and welfare services (Harrington & Dyer, 1993). Rates of DSH in 15-24 year olds in the UK between 1989-1992 were among the highest in Europe (WHO/EURO Multicentre Study on Parasuicide). As well as being at a high risk of making a successful suicide attempt, around 15-20% of those admitted to a general hospital following self-harm repeat DSH within a year of the event and approximately 50% have a history of previous DSH (Kreitman & Foster, 1991).

Various psychological factors have been reported to be significant in the assessment of the seriousness and/or repetition of DSH. These have included depression, hopelessness, impulsiveness, premeditation, impulsivity, problem duration, problem solving and anger. Hawton et al (1999) found that adolescents with a history of previous overdoses differed from non-repeaters on a number of these factors, although these differences largely disappeared when the level of depression was controlled for.

Dialectical Behaviour Therapy (DBT) has been used extensively in the treatment of self-harming behaviours. The theory holds that due to a complex interaction of environmental, physiological and familial factors, individuals who engage in DSH may have failed to learn how to tolerate or identify emotional states or feelings of frustration and distress. This theory, however, has not been empirically validated.

This study, therefore, aims to investigate the role of emotions and the ability to tolerate feelings of distress and frustration amongst adolescents who have self-harmed. The project also aims to investigate whether these factors may be potential moderators in the repetition of DSH, after the level of depression has been controlled for. This study recruited 45 patients aged between 16-21 years of age who had been admitted to hospital following a deliberate drug overdose. They completed questionnaires measuring depression, their experience of various emotions and distress/frustration tolerance. An age matched, non-self-harming general clinical comparison group was recruited and assessed using the same measures. Interrelationships amongst these factors were examined both between the DSH and non-DSH group, and between first episode DSH and repeat DSH. Results of these comparisons shall be given and discussed with reference to clinical implications.

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DECLARATION

'This thesis has been composed by myself and the work contained herein is my own'.

Signed. **Christopher J. Hewitt**

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1. INTRODUCTION

1.1 DELIBERATE SELF-HARM

1.1.1 Overview of Thesis

The act of deliberate self-harm (DSH) constitutes a major clinical problem, and is one of the five most common causes of acute medical admissions for both men and women (Hawton & Fagg, 1992). The first episode of DSH usually occurs in middle to late adolescence (Herpertz, 1995). From a developmental perspective, adolescents who have harmed themselves often have many risk factors for later developing personality disturbance, such as repeated separations, poor social problem solving and impaired peer relations (Andrews & Lewinsohn, 1992). If DSH becomes a habitual method of coping with emotions at this developmental stage, it can present many difficulties in later adult interpersonal functioning and coping behaviour.

DSH has been found to be the highest risk factor for future completed suicide. In the UK, suicide is now the second most common cause of death among people aged 15-24 years of age (OPCS, 1990). One third of adolescents who commit suicide have a history of DSH (Marrtunen, Aro & Lonnqvist, 1993). A collaborative study of self-harm in 15 European centres (the WHO/EURO Multicentre Study on Parasuicide) has indicated that rates of DSH in 15-24 year olds in the UK in 1989-1992 were among the highest in Europe. A reduction in suicide rate has been targeted in the government's recent Green Paper, "Our Healthier Nation" (DoH, 1998). Hawton, Houston and Shepherd (1999) found that in their sample of successful adolescent suicide attempters, half had seen a general practitioner within 3 months of death and one-third within a month. Nearly one-third had been in psychiatric care in the year

before death. McClure (2001) has therefore suggested that efforts should be made to identify and treat individuals who frequently repeat DSH in order to reduce their risk of completed suicide. In order to develop the most effective services, both in general practice and adolescent psychiatric services, more research is needed in the identification of factors associated with self-harm.

There is a growing body of research investigating interventions in DSH, although evidence for the efficacy of treatment following DSH is currently not strong (Hawton, Arensman & Townsend, 1998). One of the most promising interventions to date has been found to be Dialectical Behaviour Therapy (DBT). DBT was formulated by Linehan in 1993. It was initially intended for use with adults who were engaging in chronic repetitive self-harm, particularly when they had associated borderline personality disorder. DBT draws from a wide variety of models including Rational Emotive Behaviour Therapy (REBT) (Ellis, 1955) and Cognitive Behaviour Therapy (Beck, 1975). Central to the theory of DBT is the concept of an invalidating environment in which the developing child fails to accurately label or understand emotions. As a result, the child will also fail to learn the skills for "emotion modulation" and "distress tolerance". The construct of distress tolerance is very similar to the REBT construct of "frustration-discomfort tolerance". Although the DBT model intuitively makes sense and clinically fits the experience of many people who are engaging in DSH, the constructs of emotion modulation and distress/frustration tolerance have not been empirically validated. DBT has been adopted as a treatment package by a wide variety of psychiatric treatment centres throughout Britain. This study therefore sets out to examine the validity of the DBT

theory regarding the role of emotions and distress/frustration tolerance in adolescent self-harm.

Given the importance of repetition of DSH as a marker for possible later successful suicide and the fact that DSH usually begins in adolescence or young adulthood, this study shall also attempt to investigate whether the self-reported ability to tolerate frustration/distress differs between "first time" episodes of DSH and "repeat" episodes in an adolescent population. It will also investigate whether certain emotions are particularly difficult for repeat self-harmers to tolerate and whether this group experience a greater degree of secondary negative emotions in response to feeling negative emotions (e.g. sadness after feeling anger). Although a number of psychological variables have been found to differentiate between "repeaters" and "first timers", these differences have been largely cancelled out when the level of depression is controlled for. Therefore, this study shall investigate the contribution of depression in the constructs of distress and emotional tolerance.

1.1.2 Definitions of Self-Harm

Various definitions have been used to describe the act of deliberate self-harm (DSH). These have included restricting the meaning to repetitive, moderately harmful, non-suicidal self-cutting (e.g.Darche, 1990), including self-burning, interfering with wound healing, self-hitting/biting (e.g. Herpertz, 1995) and including suicidal attempts and gestures (e.g. Brittlebank, Cole, Hassanyeh, Kenny, Simpson, & Scott 1990). A number of terms have also been used to describe this behaviour, including "attempted suicide" (Stengel, 1970) and "parasuicide" (Kreitman, 1977). However, these terms have been criticised due to the debate surrounding a person's intent to die following self-harm. Throughout this thesis, I shall be using the term "deliberate

self-harm" (DSH) and shall adopt Hawton and Catalan's definition (1987) of DSH as an act involving intentional self-poisoning (overdosing) or self-injury, irrespective of the apparent purpose or intent.

1.1.3 Prevalence of DSH

1.1.3.1 Prevalence of DSH in the General Population

DSH is a major clinical problem and is now the most common cause of hospital admission for people under the age of 50 years (Roy, 1999). It has been estimated that there are about 150,000 such admissions to UK hospitals each year (Evans, Platts, & Liebenau, 1996). The majority of DSH cases are overdoses, predominantly analgesics, particularly paracetamol and paracetamol containing compounds such as co-proxamol (Hawton, Houston, & Shepperd, 1999). Self-cutting is the next most frequent form of self-harm. Favazza and Conterio (1988), estimated the prevalence of self-harm in the general population to be around 750 per 100,000 in individuals aged 15-35. Walsh and Rosen (1988) reported that the incidence of DSH has markedly increased since the 1960's when there were approximately 20,000 cases in the UK each year. Rates of DSH levelled off in the late 1970's, followed by a modest decline until the mid 1980s, but since then rates have risen continuously (Hawton, 1997). The reasons for this increase are unknown, although it is acknowledged that this rise has occurred during a period of rising unemployment and divorce and greater use of alcohol and drugs amongst young people (Charlton, Kelly, Dunnell, Evans, Jenkins, & Wallis, 1993).

Data from the Central Statistical Office (HMSO, 1990) indicates that 1 in 12,500 of the UK population is liable to commit suicide each year. Suicide has also been identified as the third most common contributor to life years lost, after heart disease

and cancer. A reduction in suicide was targeted in the UK's "Health of the Nation" White Paper (HMSO, 1992) and as mentioned above, the more recent Green Paper, "Our Healthier Nation" (DoH, 1998). Of known risk factors for completed suicide, DSH has the strongest association. In the year following an episode of DSH an individual's risk of completed suicide is 100 times that of the general population. About a quarter of all suicides attend hospital after a non-fatal act of self-harm in the 12 months before they die (Foster et al, 1997).

1.1.3.2 Prevalence of DSH in an Adolescent Population

Suicidal behaviour in children and adolescents therefore constitutes an important problem for both health and welfare services (Harrington & Dyer, 1993). The Green Paper, "Our Healthier Nation", has emphasised a focus on the mental health needs of young people and a reduction in the death rate from suicide by a further sixth (17% by 2010) (DoH, 1998). Efforts to reverse the increase in suicide among young people have focused on the clarification of risk factors connected to DSH and completed suicide. The annual incidence of DSH among children and adolescents in the general population has been found to be as high as 8.3%, with up to 27% having suicidal thoughts during the same period (Shaffer & Piacentini, 1994). Diekstra (1993) estimated that one in four parasuicides do not reach medical or other professional attention. This was also found by Hawton et al (1999) who reported that a substantial proportion of young people who commit suicide who have engaged in previous self-harm have neither been referred to a general hospital nor seen their general practitioner. Around 90% of adolescents who do go to hospital following deliberate self-harm will have taken an overdose and most of the remaining 10% will

have cut themselves, usually without any serious risk to life (Hurry, 2000) The health significance of deliberate drug overdose among the young is further underlined by the increase in the use of paracetamol (Hawton & Fagg, 1992), a worrying trend in view of the risk of fatal hepatotoxicity. It is estimated that two thirds of adolescents who take overdoses use paracetamol or paracetamol-containing compounds. In younger adolescents at least half of the overdoses that occur involve the use of prescribed medication (Kerfoot, 1988).

In general, the early 1980's saw only a modest increase in DSH in the child and adolescent population. However, Hawton and Fagg (1992) found that among older female teenagers, rates for DSH steadily increased between 1986 and 1989. Rates of DSH among males during the same period remained stable. In 1995, the rate of DSH for 15-24 year olds in Oxford was approximately 400 per 100,000 (taken from hospital presentations). Based on rates in Oxford, Hawton and Fagg (1997) estimated that nearly 20,000 young people would be referred to general hospitals each year in England and Wales as a result of deliberate self-poisoning or self-injury. More recently, a case note audit of 18 hospitals in the south-west, the south-east and the north of England, estimated the rate of DSH for 12-24 year olds to be 800 per 100,000 (Hurry & Storey, 1998). There are very few reports of DSH occurring in children below 12 years of age, although this does occasionally occur. Hawton and Goldenacre (1982) indicated that self-poisoning attempts gradually increase in girls from the age of 12, peaking at aged 16 years before levelling off. In the same study, self-harm in boys increased very slowly so that presentations at age 18 were quite close to presentations in girls at age 14. The number of female presentations remained higher than those of males throughout the age range, but at age 20 the rates

were much more similar. In violent, more lethal self-harm such as hanging, shooting, jumping from high places and motor vehicle crashes, boys outnumber girls (Russell-Johnson, 1997).

Shaffer and Fisher found that 23 % of adolescent suicides died within two weeks of their birthdays (three times the proportion that would have been expected by chance). Norgate (1996) also found a similar trend in terms of DSH following birthdays. She also found a seasonal variation, with fewer children presenting with DSH during the summer and Christmas holiday months, whereas adult suicide attempt rates are known to increase at this time.

Referral rates in South London for black adolescents following DSH were in proportion to the community composition although black adolescents reported more social stress than their Caucasian peers (Goddard, Subotsky, & Fombonne, 1996). There is a high incidence of self-harm in young Asian women, although no specific pattern of self-harm has yet been identified. Young Asians have been found to be more socially isolated than their Caucasian peers and they had higher rates of depression, hopelessness, longer premeditation times and more previous overdose attempts. (Kingsbury, 1994).

1.1.4 Characteristics in DSH

The first onset of DSH usually occurs in middle to late adolescence (Herpertz, 1995; Suyemoto & MacDonald, 1995), the peak age for presentation being 15-24 years for women and 25-34 years for men (Charlton et al, 1992). The mean age of the self-harm population as a whole is the early 30's for both sexes. The majority of people who have engaged in DSH are single and female (Canetto & Sakinofsky, 1998). Individuals who self-harm are more often under-employed, and have a lower

vocational achievement than controls in spite of equivalent education (Favazza & Conterio, 1988; Herpetz, 1995).

In the 1970's, the female:male ratio of DSH was 2:1. However, recent studies suggest the original sex bias is disappearing so that DSH is now only slightly more common in women than men (Williams, 1997). Canetto and Sakinofsky (1998) explored this gender paradox and concluded that gender bias is highly culturally bound. For example, they found that in certain communities e.g. Finland, more males than females engage in DSH (Ostamo & Lonnqvist, 1994). They concluded that the gender gap may be prominent in communities where different suicidal behaviours are expected of males and females. They suggest that these divergent expectations influence the choices individuals have and the interpretations made by others about the behaviour.

1.1.5 Social, Psychological and Medical Factors in DSH.

1.1.5.1 Social Factors in DSH

It is well known that many adverse events precede DSH. Paykel, Prusoff and Myers (1975) found that people who had deliberately self-harmed had encountered four times as many adverse life events in the previous six months as non-depressed controls. These findings have been confirmed by others (Schotte & Clum, 1987, Jack, 1989). However, it has been argued that although the role of stressful life-events in precipitating parasuicide is larger than for other psychological disorders, there remain people who have similar stressors but do not harm themselves. This suggests that life events may be mediated by individual differences in coping skills and resources.

In terms of the role of social factors in adolescent DSH, there have been a number of major changes in the past 30 years which may account for the increase in DSH in this population. One such change has been the reduction in family ties, particularly as a result of an increasing divorce rate. This has coincided with a trend for young people to face pressures associated with adult life at an earlier age than was the case in the past. There is evidence that the lack of availability of supportive relationships during times of stress and pressure can also lead to depression. Durkheim (1897) was the first to postulate that a lack of social integration and increased social isolation might explain suicide. Although he was primarily concerned with suicide in adults, it could be argued that his theory might also apply to adolescents who, due to societal changes, are at increased risk of becoming socially isolated.

1.1.5.2 Biological Factors

Research into the biochemistry of suicide has shown that there are low cerebrospinal fluid (CSF) levels of the serotonin metabolite 5-hyroxyindolacetic acid (5-HIAA) in a number of patients displaying violent and suicidal behaviour (Brown, Ebert, & Goyer, 1982). Low levels of 5-HIAA in the CSF have been found to be related to suicidality and impulsivity in patients with depression, personality disorders, schizophrenia and alcoholism (Coccaro, Seiver, Klar, Maurer, Cochrane, Coper, Mohs, & Davis, 1989). Nordstrom et al (1994) found low CSF 5-HIAA concentrations predicted short-range suicidal risk in a high risk group of depressed patients with a history of DSH.

1.1.5.3 Genetic Factors

Suicidal behaviour is more common in the relatives of people who have completed suicide, which suggests a genetic component. However, relatives also share a similar environment. Roy, Segal and Centerwall (1991) found that monozygotic twins had a concordance rate for suicide of 13.2% compared with a rate of 0.7% in dizygotic twins. Studies have also looked at adoptees who have committed suicide in later life. The Danish adoption studies by Schulsinger, Kety, Rosenthal and Wender (1979) demonstrated 12 suicides among 269 biological relatives of 57 people who were adopted and who later commited suicide. Among the group of 148 adopted relatives (nonbiological relations including the parents who raised the children who had committed suicide) there were no suicides.

1.1.6 Adolescent Developmental Factors and DSH

The fact that DSH most often begins in adolescence raises questions as to the role of developmental challenges which are faced by young people. It is well documented that there are a range of social and interpersonal pressures on young people. The complex interaction between maturational tasks and societal pressures has been found to result in DSH in vulnerable individuals (McClure, 2001). It has been further suggested that the nature of these societal pressures are increasing, which may explain the increase in DSH since the 1960's. Contemporary problems such as unemployment, substance misuse, new roles and expectations of young men in society, coupled with decreased availability of social support or cohesive families have all been related to an increased vulnerability to DSH. As outlined below, there are a range of developmental tasks to be achieved in adolescence, any of which may

be thwarted by lengthy dependence on the family and pressure of social expectations in general.

(1) Forming a clear individual identity

(2) Accepting a new body image

(3) Attaining emancipation from parents

(4) Developing a personal value system

(5) Achieving financial and social independence

(6) Developing relationships with both sexes

(7) Developing cognitive skills and the ability to think abstractly

(8) Developing the ability to control one's behaviour according to socially acceptable norms and take responsibility for one's behaviour.

It has been suggested that mid-adolescence is a time at which the responsibilities of adulthood confront the adolescent who has just acquired an adult body, mind and feelings, but has inadequate skills to cope with this transition, leading to a sense of hopelessness. On an individual level, Hodes (1990) suggests that overdosing and self-harm are forms of communication and that "overdosing occurs in individuals who are relatively powerless".

An important concern in the context of self-harm in adolescents is the development of their perception of death. Cognitive developmental theory stresses the importance of the meaning a young person ascribes to his/her own death. Death can seem remote and children and adolescents sometimes have a sense of immortality (Gemma, 1989). Realistic knowledge and understanding of the effects of drugs (e.g.

paracetamol) and other toxic substances may be lacking, affecting the behaviour of the young person (Kingsbury, 1993).

1.1.7 Intention and Function of Adolescent DSH

In many cases, adolescents who self-harm do not have a clear intention to kill themselves (Diekstra, Keinhorst, & DeWilde, 1995). For example, Hawton et al found that only about one-third of 50 adolescent self-poisoners reported after the event that they had wanted to die, 42% didn't care whether they lived or died and a quarter had not wanted to die (Hawton, Cole, O'Grady, & Osborn, 1982). Even if adolescents report their intent is to die, the lethality of adolescent DSH is generally low (Rotherham-Borus, 1988). It has been suggested that some adolescents who have engaged in DSH state a lethal intent in order to gain social acceptability for their act or to influence helping agencies (Bancroft, 1976). Groholt, Ekeberg and Haldorsen (2000) compared adolescents who did not state a wish to die with those who stated a wish to die. They found that those without a stated intent to die were "disruptive, overwhelmed by acute problems, and they want help here and now. They may be rather impulsive, and their emotions and motives are possibly unstable, but they see the future with some optimism." In comparison, adolescents who stated an intention to die were found to be "depressed, lonely, with less hope for the future, and they less explicitly want help." Groholt et al (2000) also found that both groups of adolescents seemed most concerned with their inner thoughts and lack of control, while those with intentions other than to die were significantly more preoccupied with interpersonal problems. They reported that they had lost control of their feelings, and they did not know why they had harmed themselves. The events that

gave rise to their motives when they harmed themselves did not differ between the groups.

Young people most frequently describe unbearable feelings of anger or a sense of isolation or wanting to escape from a painful situation as explanations for their self-harm (Hawton et al, 1982), which according to Diekstra, Keinhorst and DeWilde (1995) suggests DSH is associated with a lack of coping skills. These feelings can also be seen to be consistent with a lack of communication within families and disruption to relationships with parents or a boy/girlfriend.

Hawton (1982) found that only a small number of adolescents admitted to punitive or manipulative reasons for their overdoses, although found that clinical staff attributed the behaviour to these reasons. Bancroft, Hawton, Simkin, Kingston, Cumming and Whitehall (1979) and Michel (1994) also found this difference in attribution of intent between patients and clinical staff in an adult population, although found this to be of a greater degree. The three most common reasons adolescents gave for overdosing were "to get relief", "to escape", and to "show desperation". Feelings of isolation and anger would again be seen to be consistent with these reasons, coupled with an inability to cope with these in an adaptive way.

Hurry (2000) suggested that it may be difficult to ascertain adolescent's intentions as they may be obscure and complex. In addition, older adolescents may decide to take an overdose under the influence of alcohol. It has been estimated that approximately two-thirds of men and nearly half of women have taken alcohol within a few hours of their overdose (Ebbage, Farr, Skinner, & White,1994; Kreitman, 1977).

1.1.8 Factors Predicting DSH in Adolescents

The identification of factors associated with DSH is of crucial importance in targeting individuals who may be at high risk. Awareness of these factors allows resources to be targeted at developing preventative strategies and the adoption of more effective coping skills.

The act of deliberate self-harm in children and adolescents is frequently impulsive. For example, Hawton and Catalan (1987) reported that in a group of 98 adolescent self-poisoners, two-thirds had only thought about taking an overdose within one hour of the event. In many cases the decision to self-harm occurs as a result of a clear and present precipitant. Children under 16 years cite arguments with parents as the precipitating factor in about 50-75% of cases (Kerfoot, Dyer, Harrington, Woodham, & Harrington, 1996). Problems in school or with peers or ongoing difficulties in their home life can often act as triggers. For young people aged between 15 to 24 years, fights with a girlfriend/boyfriend can become an important precipitant, especially for young women (Hurry & Storey, 1998). Nasr, Vostamis and Winkley, (1997) found that 67% of adolescent overdoses were precipitated by arguments and 19% by school related stressors. The apparently impulsive nature of self-harm also raises the possibility that adolescents may be unable to tolerate particular feelings or emotions, and therefore aim to rapidly discharge these unpleasant feelings through DSH.

Kerfoot (1996) found a strong and robust association between childhood DSH and parental problems, including criminality and reliance on welfare benefits. Research would indicate children who have experienced a disrupted upbringing caused by parental marital problems resulting in separation or divorce are 20 times more likely

to be living in care at the time of their DSH than their peers (Hurry & Storey, 1998). Over half of adolescents under 16 who present with DSH will be living with only one natural parent, primarily due to marital separation or divorce, and up to 40% will have spent time in local authority care. Hawton et al (1982) found that a third lived with a single parent, a tenth with neither parent, and one in seven had previously been in care with social services. Kerfoot also found a strong association with on-going family relationship problems (which are the most common precipitant of an overdose) and with factors intrinsic to the child e.g. behavioural problems, hopelessness and depression.

Unemployment rates for both male and female attempters were found to be in excess of local rates for older adolescents. A high number of adolescents (especially males) were not living with friends or relatives, which is known to be a high risk for repetition of DSH and completed suicide (Hawton & Fagg, 1992).

Substance misuse is increasingly cited in research reports as a serious risk factor for completed suicide and DSH. Bukstein et al (1993) compared individuals who had completed suicide with community controls. The suicide victims were more likely to have had a lifetime history of substance misuse (particularly alcohol), co-morbid major depression (usually antedating the substance misuse), suicidal ideation in the past week, a family history of depression and substance misuse and legal problems. Hawton and Fagg (1992) found excessive drinking and drug abuse to be quite common in adolescent DSH, especially in males. Alcohol consumption was often associated with the attempts, again especially in males, but increasingly in females during their study period (1976-89). Hawton and Fagg argued that as well as

increasing the likelihood of the attempt, alcohol use could also seriously add to the morbidity of an overdose.

Family functioning has been found to be important in adolescent DSH. Stressful relationships with parents, especially with the mother have been shown to be significantly related to depression and suicidal ideation (Adams, Overholser & Spirito, 1994), with families showing dysfunctional problem solving and avoidance (Adams, Overholser & Lehnert, 1994). Families are frequently coping with high levels of interpersonal and social stress, and the quantity of communication within the family is often poor (Richman, 1979). Additionally, their problem solving skills may be limited (Hawton, 1986). Sorenson and Rutter (1991) noted a higher rate of psychiatric disorder and previous overdose among family members. Brent et al (1994) argued that parental depression and substance misuse may heighten the risk for suicide above and beyond their contribution to their risk for these disorders in the children due to the environmental impact of having a psychiatrically ill parent. Discord, physical and sexual abuse, exposure to family violence and unsupportive interactions are more common in families of suicide attempters than in those of psychiatric or community controls, and are also associated with repeat attempts (Fergusson & Lynskey, 1995; Kerfoot et al, 1996). A community study of adult women showed that almost all of the women who had a history of attempted suicide also had a history of sexual abuse (Romans, Martin, Anderson, Herbison & Mullen, 1995). Among those who were sexually abused, the risk of DSH was substantially increased if abuse was repetitive, resulted in penetration, was associated with force and led to separation from parents.

Carris, Sheeber and Howe (1998) proposed that family rigidity and adolescent suicidal ideation is mediated by adolescent problem-solving deficits. Olsen (1993) described a rigid family as one in which there are "inflexible relationships that do not facilitate functional changes in response to problems or developmental needs". They argue that a rigid family environment, characterised by a lack of adaptability in response to problem situations, is unlikely to facilitate the development of flexible and effective problem-solving skills. The resulting absence of effective skills, and the concomitant lack of confidence in one's ability to overcome difficult problem situations, serves to increase the likelihood of suicidal ideation. Adolescents who have run-away or are homeless also appear to be at increased risk of DSH (Rotherham-Borus, 1993).

Hawton (1986) estimated that in a third of cases there are no clear precipitants and suggested that depression was more common in the absence of a precipitant.

1.1.9 Associated Diagnoses

Psychiatric disorder in adolescents is associated with increased risk of suicide, with comorbid disorder indicating epecially high risk (Shaffer et al, 1996). Following an episode of DSH, about 30-40% of general hospital attenders are given a psychiatric diagnosis and about a third have had prior contact with the psychiatric services (Morgan, 1975).

In adults, DSH is most often associated with a diagnosis of borderline personality disorder (Langnbehn & Pfohl, 1993) especially in relation to repetitive self-harm. Haw et al (2001) found that 46% of DSH patients presenting to a general hospital had a personality disorder. Borderline personality disorder has been reported as the most common personality disorder in several studies of DSH (Suominen,

Henriksson, & Suokas, 1996; Gupta & Trzepacz, 1997). However, Haw, Hawton, Houston and Townsend (2001) and Dirks (1998) found paranoid and anxious, followed by impulsive, to be the most common personality disorders. Some studies comparing personality-disordered, self-harming patients with personality disordered, non-self-harming patients have found self-harm to be associated with more severe character pathology, suggesting that self-harm is a marker for especially severe personality disorder (Dulit, Fyer, Leon, Brodsky & Francis, 1994; Soloff, Lis, Kelly, Cornelius & Ulrich, 1994). However, Suyemoto (1998) has argued that the fact that the majority of studies on DSH have been carried out with inpatient populations has likely biased results toward the more severely disordered patients. Other diagnoses which have been associated with DSH include major depression, dissociative identity disorder, obsessive compulsive disorder, alcohol/substance misuse, eating disorders, schizophrenia, anxiety disorders, adjustment disorders, and other personality disorders (Brittlebank et al, 1990; Darche, 1990; Favazza et al, 1989; Garrison, Addy, McKeown, Cuffe, Jackson, & Waller,1993; Ghaziuddin, Naylor, & Ghaziuddin,1992; Herpetz, 1995; Himber, 1994; Langbehn & Pfohl, 1993; Suyemoto & MacDonald, 1995). The general observation has been made that as the number of comorbid conditions (either affective or nonaffective) increases, so does the risk of suicide attempts (Fergusson & Lynskey, 1995, Kerfoot et al, 1996). There is also a suggestion that early in the first episode of a major depressive episode, adolescents are at a high risk for completed suicide (Brent et al, 1993). Haw et al (2001) examined a representative sample of 150 adult DSH patients who presented in a general hospital and found that 70.7% of patients met ICD-10 criteria for a major depressive episode. Nearly half the depressive episodes were severe or psychotic. In

the same study, a high prevalence of comorbid psychiatric and personality disorders (44%) was found in DSH patients. Foster, Gillespie and McClelland, (1999) found that such comorbidity increased the risk of suicide over six fold compared with the risk in individuals with psychiatric disorders alone. Impulsive-aggressive (Cluster B) personality disorders have been associated with an inability to modulate intensive affect and aggression, leading to an elevated risk of DSH (Brent, 1997).

Adolescents who have harmed themselves have many risk factors for later personality disturbance, such as repeated separations, poor social problem solving and impaired peer relations (Sadowski & Kellym 1991; Andrews & Lewinsohn, 1992).

Summary

DSH is a serious and growing problem which affects both males and females of all ages. The reasons for the apparent increase in the incidence of DSH are complex, but are thought to be related, in part, to changes in societal structure and expectations. These have included an increase in unemployment, increased divorce rate, a reduction in the availability and number of supportive relationships and isolation. The fact that most DSH begins in mid-late adolescence has led to research examining the interface between developmental maturational tasks posed at adolescence and the changing expectations of the adult role. This transition to adulthood can bring about increasing difficulties and conflict in relationships with peers and parents. Such difficulties are further compounded in families where there is discord and histories of physical and sexual abuse, which can generate feelings of anger, isolation and a wish to escape from an unbearable situation. Research indicates that for some individuals, these feelings can be discharged or controlled through self-harm. The increasing use

of alcohol and drugs in adolescence has also been associated with DSH. The presence of psychiatric disorders especially co-morbid frank mental illness, has been shown to greatly increase an individual's risk of DSH and suicide. Borderline personality disorder and major depression are the two main diagnoses associated with DSH. The incidence of depression in adolescence and its potential relationship with DSH shall now be further examined.

1.2 ADOLESCENT DEPRESSION

Suicidality has a strong and independent association with symptoms of depression (Fombonne, 1998) and the repetition of DSH (Hawton et al, 1999). The prevalence of depression increases rapidly in adolescence. Graham and Hughes (1995) estimate that in a hypothetical study of 1000 secondary pupils, 50 would be seriously depressed each year.

Three levels of operationalising depression in adolescence have been proposed (Compas et al, 1993); Depressed mood (Kandel & Davis, 1982), an anxious-depressed syndrome (Achenbach, 1991), and depressive disorders (American Psychiatric Association, 1994). A large proportion (30-40%) of adolescents experience significantly depressed mood at any one point in development, with a smaller group (5-6%) experiencing significant levels of a depressive syndrome, and a still smaller proportion (2-3%) of the population experiencing depressive disorders.

For most people with depression, depressive illness is a recurring condition. The majority of young people with major depressive disorder (MDD) will have recovered 9 months or so from the time of first assessment, although 15% continue to have persistent disorder for longer than 18 months. The longer the episode persists, the

greater the risk for adverse effects on subsequent social and cognitive development. Around 50% will have a recurrence within a few years of recovery from a first episode.

Current models of depression adopt a biopsychosocial perspective. Biological factors that are involved in the emergence and course of depression during adolescence include neuroendocrine processes, dysregulation of neurotransmitters, dysregulation of biological rhythms such as sleep patterns, and a family history of depression which suggests a genetic loading for the disorder (Brooks-Gunn et al, 1994). Cognitive factors that are associated with depression in adolescence include a dysfunctional style of attributing causes of success and failure (Summerville et al, 1994), negative perceptions about the self, hopelessness about the future and a maladaptive style of coping with stress (Kazdin, French, Unis, Esveldt, & Sherick, 1986). Social factors associated with adolescent depression include family dysfunction (including parental depression), psychosocial stress and poor peer relationships.

Adolescence is a time when problem-solving strategies are developed but these abilities can be impaired by depression (Asarnow, Carlson & Guthrie, 1987). The literature on crisis intervention stresses the distinction between life events as "hazards" and the resulting "crises" that may develop in response for some individuals, depending upon their capacity to cope with specific events (Adams, 1991). That capacity, in turn, is seen as a function of past exposure to challenging life events, of level of success in resolving previous problems, and of the degree to which the new hazard is similar to past ones. These factors determine the extent to which the individual perceives him/herself as having the competence to cope; this

perception in turn influences whether the person directly confronts and resolves the issues involved, or, instead becomes symptomatic. Whether a negative life event contributes to depression, is thus influenced by the adolescent's sense of competency to deal with the event (Nezu & Roman, 1985).

1.2.1 Depression and DSH

Although the act of DSH is often impulsive and precipitated by interpersonal crisis, there is an association with major depression and DSH. The link between depression and DSH was originally made by Freud (1917/1984) who proposed that depression (melancholia) was partly due to anger turned against the self. Kerfoot et al, (1996) found that in a series of 40 adolescents aged between 11 and 16 years who had attended casualty following DSH, 67% were diagnosed as having a major depressive disorder, rising to 75% when other psychiatric diagnoses were included. In another study, based on psychiatric interviews at admission, a much lower figure of around 25% of adolescent self-harmers were diagnosed as suffering from depression (Hawton, 1986; Kerfoot, 1988). These discrepancies may be due to the adoption of different criteria for identifying psychiatric disorder. The use of a structured interview frequently produces much higher rates of depression than clinical diagnosis, including less serious cases within the category of depression (Hurry, 2000). Some follow-up studies have shown the outcome of adolescent DSH to be similar to that of adolescent depression (Lewinsohn, Rhode & Seeley, 1994) and repetition of self-harm associated with episodes of depression. Research would indicate that where depression and DSH occur together the risks of repetition or suicide are greater than for either factor alone (Hawton & Fagg, 1988; Owens et al, 1994). However, Groholt (2000) found no significant difference between self-

reported depression in adolescents with a stated intention to die and those who gave other motivations for self-harm. Hjelmeland (1996) also found that those not intending to die more often had labile emotional states that did not last long enough to warrant a DSM-IV diagnosis of depression.

Beck et al (1975) identified hopelessness to be the key variable linking depression and suicidal behaviour. Beck et al (1985), later argued that depression and suicidal intent show little or no correlation when hopelessness scores are controlled for, while suicide intent is highly associated with hopelessness, even when depression scores are controlled for. In a group of depressed inpatients, hopelessness was the best predictor of suicide at 10-year follow-up (Beck et al, 1985). McLaughlin, Miller and Warwick (1996) found that adolescents engaging in DSH are more likely to report feelings of hopelessness about their future even after depression is taken into account. They also found a marked difference in hopelessness between the DSH group and the matched depressed non DSH group, suggesting that hopelessness is an important independent factor in the causality of DSH. Hopelessness is also a critical domain to assess as hopeless patients are more likely to drop out of treatment (Brent, Birmaher, Holder, Johnson & Kolko, 1995). In contrast, Rotherham-Borus and Trautman (1988) studied a group of 44 Hispanic and Black female adolescents and found hopelessness was not predictive of suicidal behaviour. This finding was supported by Cole (1989) who found that depression rather than hopelessness predicted self-harming ideation and attempts in an adolescent population.

The evidence of the contributory role of depression in DSH indicates the importance of effective treatment of adolescents with depressive illness. The use of tricyclic antidepressant medication has been shown to be of limited effectiveness in a

population at high risk of repeated self-poisoning (Hazell, O'Connell, Heathcote, Robertson, & Henry, 1995). However, research investigating the use of antidepressants with less toxicity in overdose is currently being carried out (e.g. Verkes, Van der Mast, & Hengeveld, 1998).

Kerfoot et al (1996), found that major depressive disorder often remits rapidly following DSH, raising the possibility that depression has a different significance in the context of DSH. Therefore, although patients may be distressed at the time of self-harm, they are not necessarily suffering from a depressive syndrome. Ennis et al (1989), found that although many self-harm patients obtained high scores on the Beck Depression Inventory (BDI-II), the prevalence of major depression, as determined by a clinical diagnosis using DSM-III criteria, was only around 31%. This finding has treatment implications as those patients who do not meet diagnostic criteria for major depression will not be likely to benefit from antidepressant medication despite high levels of subjective distress.

Summary

The incidence of depression increases rapidly during adolescence. A large number of adolescents who self-harm also have major depressive disorder. The biopsychosocial model suggests that particular changes occur during puberty which could account for this increase in depression. These include biological factors such as disturbances to circadian rhythms and an alteration in neurotransmitter function. Cognitive and social factors are also pertinent within this model, such as disturbed peer and family relationships, underdeveloped problem solving skills and psychosocial stressors. Research suggests that hopelessness is a key factor in self-harming, although this is uncertain. Although depression does appear to contribute

to DSH for some individuals, a number of theoretical models have been developed to integrate other contributory factors.

1.3 MODELS OF DSH

Suyemoto (1998) stated that one of the major difficulties in attempting to understand the intrapsychic and interpersonal functions of DSH is the complexity and cultural significance of the behaviour. Self-harm is related to a number of diagnoses, symptoms, and past experiences. One of the most difficult tasks in attempting to understand any pathological behaviour is discerning why this *particular* behaviour, at this *particular* time, to serve this *particular* function, for this *particular* individual. As DSH is contextually complex, it is difficult to completely differentiate one function from another. However, an attempt to do this is necessary to aid our understanding of DSH and to tease apart reasons why particular individuals engage in this behaviour.

1.3.1 The Environmental Model

The environmental model focuses on the interaction between the individual engaging in DSH and the environment. It addresses factors that may have initiated as well as maintained the behaviour, emphasising that self-harm serves both the self-harmer and the environmental system. The model incorporates theory grounded in both behavioural and systemic developmental traditions. It is proposed that self-harm begins through either familial modelling of abuse, leading the individual to feel that self-harm is right and to link pain with care, or via modelling and learning about the benefits of self-harming through reinforcement, either internally through the feeling of relief that self-harm can engender or environmentally through reinforcement from

family, peers and caregivers. Social learning theory (Bandura, 1973) may be relevant to the environmental view of DSH as it holds that adolescents learn, from their parents, models that injury and care are associated, and attempt to self-care through DSH (Simpson & Porter, 1981). Social learning theory may also aid our understanding of the contagion effect (Ghaziuddin et al, 1992) as individuals may observe that DSH is rewarded and may therefore imitate the behaviour. Other authors have emphasised the secondary gains of attention and control over others (Allen, 1995). Chowanec, Josephson, Coleman and Davis (1991) see one of the main goals of DSH as mobilising other people to react.

For the system as a whole, DSH may be a means of maintaining homeostasis i.e. by either expressing or deflecting attention from systemic (e.g. familial, environmental, or societal) dysfunction. Intervention based on this model would therefore concentrate on the behavioural treatment of the symptom, addressing secondary gains through changing environmental reinforcers, and addressing systemic dynamics through group or family therapy.

1.3.2 The Drive Models: Psychoanalytic Understanding

The drive models of DSH are primarily rooted in psychoanalytic developmental theory which attempts to understand the behaviour as an expression or repression of life, death, and sexual drives. These include the antisuicide and sexual model.

1.3.2.1 The antisuicide model.

Some authors believe that DSH is a compromise between the life and death drives and is an attempt to avoid complete destruction by channelling the destructive impulses more specifically into self-harm (Himber, 1994). Firestone and Seiden

(1990) state that the incidents of self-harm serve as "microsuicides" embracing the self-destructive feelings, behaviours and communications in which an "illusion of mastery over death" is created. It is therefore seen as an active coping mechanism used to avoid suicide.

1.3.2.2 The sexual model

This model proposes that DSH offers sexual gratification, is punishment for or attempts to avoid sexual feelings or actions, or occurs as an attempt to control sexuality or sexual maturation. This connection between DSH and sexuality is suggested by the absence of DSH prior to puberty and the high correlation between sexual abuse and DSH.

DSH is believed to be linked to sexuality in both positive and negative ways by both a way of obtaining sexual gratification while simultaneously punishing oneself for the sexual drive and expressing an unconscious wish to destroy the genitals as the root of this drive (Daldin, 1988; Woods, 1988; Friedman, Glasser, Laufer, Laufer, & Wohn, 1972). Friedman et al (1972) relate DSH to the psychoanalytic idea that changes associated with puberty initiate the revival of Oedipal issues (Freud, 1958; Josselson, 1980). They state that increased sexual fantasies about the mother and the accompanying aggressive impulses may be experienced by self-harming adolescents as overwhelming. Self-harmers may feel "forced" by their bodies to have these fantasies, resulting in DSH as an attempt to destroy or purify the body, which is seen as separate from the self.

The sado-masochistic character of self-harm has also been related to sexuality (Asch, 1988). The same power dynamics and dependency/autonomy needs that underlie

sado-masochistic sexualised acts are thought to apply to DSH, although via a less conscious mechanism. Both types of masochistic behaviour are concerned with power and the need to be in control of the painful or unpleasurable relationship or act.

Treatment in the drive model essentially involves psychoanalysis to address repressed psychosexual developmental conflicts and attempts to reconcile the life and death drives. There is little empirical evidence for this approach, although there are published psychoanalytic case reports (e.g. Friedman et al., 1972; Woods, 1988). In addition, the unique aspects of this approach (psychosexual conceptualisation and interpretation) do not seem to match the aspects of treatment that self-harmers find helpful e.g. expression of emotion, connection to a therapist and understanding and gaining insight into the behaviour (Ettinger, 1992).

1.3.3 The Affect Regulation Models: Psychodynamic Explanations.

Within such models it is proposed that DSH may be used to express emotion and conflict within the self and in relation to others, as well as to achieve a sense of control over emotion that threatens to generally overwhelm the individual, their sense of self, and their connectedness to the world (Allen, 1995; Herpetz, 1995). The emotion is likely related to perceived abandonment or loss preceding the act of DSH. The emotion may be anger that is redirected from the other onto the self for fear of destroying the other resulting in abandonment, or pain at the rejection of the other (Darche, 1990). DSH may also be used in conjuction with dissociation to regulate affect through distancing.

Liebenluft, Gardner and Cowdry, (1987) conceptualised DSH as a need to feel a real physical pain as opposed to only an emotional pain. It may be that self-harmers need

to have physical evidence of their emotional pain in order to feel that their emotions are real, justified or able to be tolerated.

1.3.4 Cognitive Models of DSH

Cognitive biases such as hopelessness and low self-esteem are thought to play a major part in DSH (Beck, Kovacs & Weissman, 1975). Therefore, the person's appraisal of events such as unemployment, the break up of a significant relationship or abuse together with their existing set of coping skills mediate the impact of the event. Negative views of the self and the future contribute to negative affect and thoughts of suicide and resultant DSH. Beck's hopelessness theory (Beck et al, 1975) suggests that such individuals possess a system of cognitive schemata characterised by negative expectancy which anticipates a negative outcome to any attempts to attain major life goals. Thus the individual becomes hopeless, an affective state which some authors have found to consistently correlate with suicidal intent. Individuals who engage in DSH have also been found to construe their world dichotomously and are cognitively more rigid (Neuringer, 1976). Such tendency to think in a dichotomous fashion is thought to diminish the individual's ability to identify "compromises" or alternatives and so impairs their problem-solving capacity. Their locus of control also tends to be more external (Goldney, 1982). Ryan, Parle and Babidge (1998) developed a cognitive behavioural model of DSH (Figure 1.) that set out to provide an understanding of the process of DSH and a framework for psychological intervention. They proposed that successful copers minimise the meaning and impact of negative events by appraising them as less threatening (primary appraisal), and by seeing them as less important, less harmful or temporary. They have greater confidence in their own ability or the strength of their

supports to manage (secondary appraisal) (Salkovskis, Atha, & Storer, 1990). Consequently their distress is less severe and of shorter duration, and they are more likely to adopt strategies which will relieve rather than exacerbate the situation.

DSH patients have been found to be less able to balance the impact of negative events (Wilson, Stelzer, Bergman, Kral, Imayatalluh, & Elliot, 1995). Their primary appraisal is often that the events are an overwhelming loss (e.g. to self-esteem) or violation (e.g. of values), and they are less able to identify adaptive coping strategies or support to manage or reduce the significant negative affective states generated (secondary appraisal). Their response is to adopt passive or avoidant coping, which serves to further impair their limited problem solving.

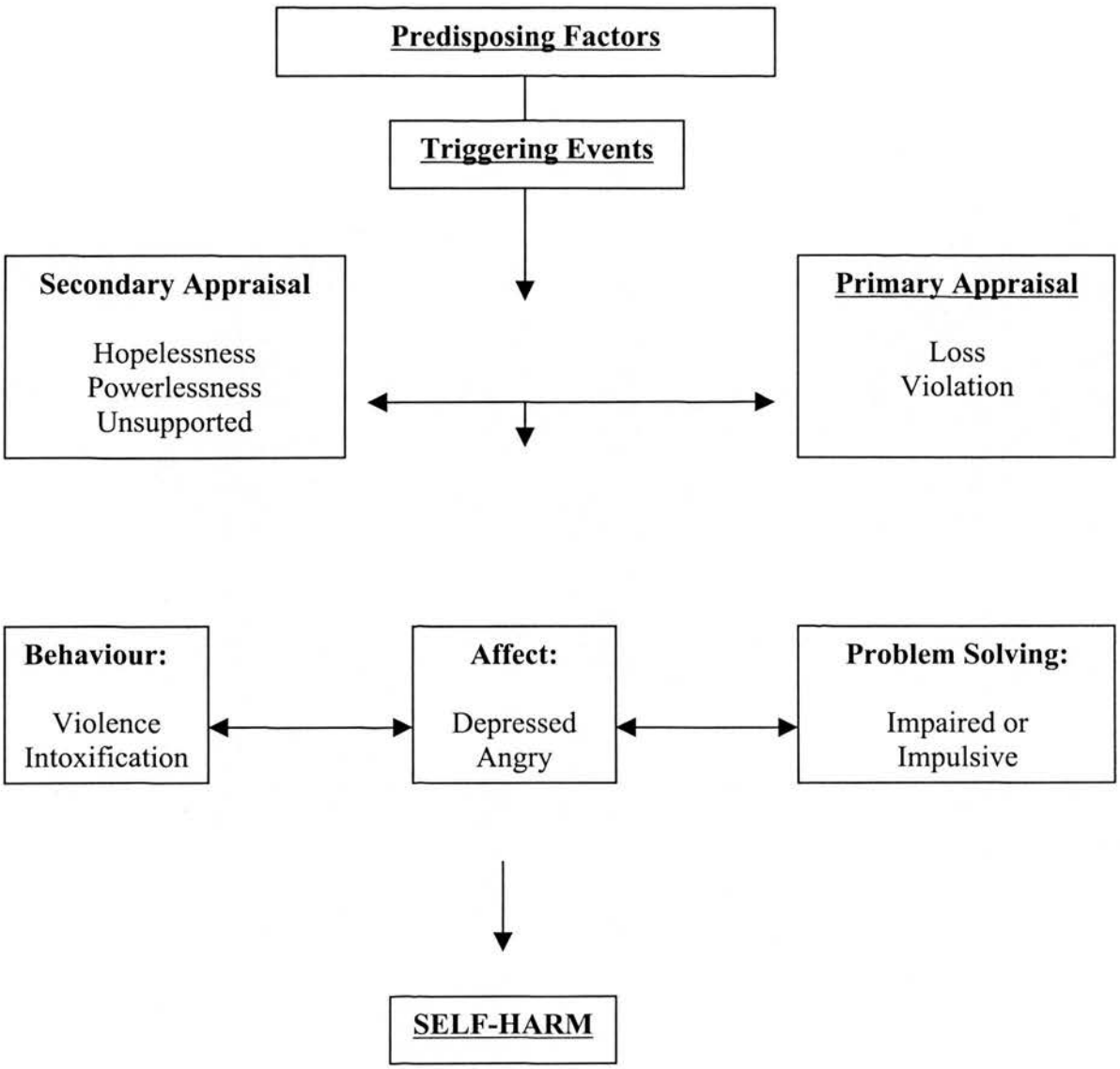

Figure 1. A Cognitive-Behavioural Model of Contributory Factors in DSH

(Ryan et al, 1998)

1.3.4.1 Problem-Solving and DSH

Problem solving ability has been shown to be poorer in adolescents who have self-harmed compared to adolescent groups of psychiatric patients and normal controls (Sadowski, 1993). Research has demonstrated that a substantial proportion of DSH adolescents felt unable to generate solutions to their problems (McLaughlin et al, 1993). According to D'Zurilla and Goldfried (1971), effective problem-solving consists of five sets of cognitive operations: problem orientation, problem definition and formulation, generation of alternative solutions, decision-making and verification.

1.3.5 Dialectical Behaviour Therapy

Dialectical Behaviour Therapy (DBT) (Linehan, 1993) draws from a wide range of theoretical models including affect regulation, cognitive, biological and envioronmental. It was introduced as a method of helping those who engage in chronic repetitive self-harm, particularly when they have associated borderline personality disorder (BPD). DBT is based on Linehan's biosocial theory in which BPD is viewed primarily as a dysfunction of the emotion regulation system. The aetiology of such dysfunction is thought to reside in the transaction between a child with a biological vulnerability growing up in an "invalidating environment". An invalidating environment is one in which the individual's experiences and responses are disqualified by significant others. An example of this is the response to the child's communications which are implied as being inaccurate and invalid and not a true indication of his/her true feelings. An invalidating environment also places a

major emphasis on self-control and self-reliance. Linehan suggests that a vulnerable child in such an environment will fail to be able to accurately label or understand emotions or feelings or trust his/her responses to events. As a result, it is proposed that the child will also fail to learn the skills for regulating emotion or tolerating distress. These deficits form a central element of intervention in DBT which aims to provide more adaptive skills in these areas of deficit. Therefore, DBT views suicidal and self-destructive behaviours as having important affect regulating properties as well as serving to elicit helping behaviours from an otherwise invalidating environment. Suicidal behaviours are seen as maladaptive solutions to overwhelming and intensely painful negative emotions. A detailed outline of DBT intervention is given in Section 1.6.3.2. Although DBT as a whole has been found to be effective in the treatment of self-harming behaviours, specific components of it have not been, e.g. distress intolerance and emotion dysregulation.

Summary

Various models have been proposed which attempt to explain the motivational and functional aspects of self-harm. These models are drawn from different theoretical backgrounds including psychoanalysis, behaviourism and cognitive psychology. The environmental model suggests that through the interaction between an individual and their early environment, an association is made between self-harm and the provision of care or attention. Self-harm can also be seen to maintain homeostasis in the family. The psychoanalytic model emphasises the role of unconscious drives and conflicts between life and death and the punishing and gratifying aspects of sexuality. The cognitive-behavioural models emphasise cognitive biases involved in

DSH and suicide, such as negative expectancy, hopelessness, loss and violation. In addition, this model emphasises deficits in problem-solving ability which renders the identification of appropriate coping strategies more difficult. Finally, Dialectical Behaviour Therapy integrates a number of the elements from cognitive, environmental, affect regulation and behavioural models to explain the genesis of self-harming behaviour and holds deficits in distress tolerance and emotion regulation to be of key importance. In addition to identifying factors which may lead to a person engaging in DSH, research has also attempted to identify factors which may be involved in the repetition and maintenance of DSH.

1.4 REPETITION OF DSH

1.4.1 Factors Predicting Repetition

Investigation of factors associated with the repetition of DSH is important for several reasons. First, it would seem to indicate persistent or recurrent psychosocial problems. Second, it places considerable demands on clinical services, and thirdly, it is associated with a considerable risk of completed suicide.

Kreitman and Foster (1991), examined significant factors involved in the repetition of DSH in an adult population and investigated whether a quantitative increase in DSH was accompanied by qualitative changes in patient characteristics. They commented that there is some evidence that the characteristics of patients with a prior history of DSH tend to vary from year to year. This led them to devise predictive scales based on stable factors which were able to identify patients at high risk of repetition. They found the following to be predictive:

1. Previous parasuicides
2. Clinical diagnosis of personality disorder
3. Heavy alcohol consumption (greater than 21 units a week for men and over 14 units a week for females)
4. Previous psychiatric treatment
5. Unemployment
6. Social Class
7. Drug abuse
8. Criminal record
9. Violence (received or given in the past 5 years)
10. Aged between 25 and 54
11. Single, divorced or separated

They found that patients who had three or less of these factors had a repetition rate averaging 5%. Patients with between four and seven factors had a repetition rate of 20.5% and those with eight plus had a repetition rate of 41.5%.

This system of listing risk characteristics has been criticised due to the high rate of false positives, and is therefore not very helpful in a clinical setting (Hurry, 2000). Kral and Sakinofsky (1994) therefore proposed a system of establishing clusters of characteristics which are associated with more reliable diagnosis or identification.

Hawton and his colleagues (1982) have devised such a classification system, consisting of the following three categories:

Group 1: Acute. The problems identified at the time of the overdose have persisted for less than one month; absence of behavioural disturbance.

Group 2: Chronic. The problems identified at the time of the overdose have persisted for one month or more; absence of behavioural disturbance. (This group contains those most likely to have symptoms of depression).

Group 3: Chronic with Behavioural Disturbance. The problems identified at the time of the overdose have persisted for one month or more; there has been recent behavioural disturbance (such as stealing, repeated truancy, drug taking, heavy drinking, fighting or being in trouble with the police).

Hawton et al found this classification system to be useful in predicting subsequent improvement and repetition of attempts. Fifty per cent of those in Group 3 took a further overdose within the year, as opposed to only 3% in the other two groups. However, it has been argued that the apparently good positive predictive value from a high score does not mean risk scales are accurate in predicting repetition for the whole population. Although high scorers frequently repeat, only a few people score highly. Most repeats involve the much larger number of people at lower apparent risk. Therefore, using existing risk assessments, the smaller high-risk group will contain no more people who will eventually repeat than the larger low-risk group.

Kral and Sakinofsky (1994) found that compared with single-episode attempters, repeat attempters show more symptom chronicity, worse coping histories, higher prevalence of substance misuse and suicidal behaviour in the family, higher lethality and depression scores, a greater likelihood of inpatient admission, less impulsivity and worse prognosis at one-year follow-up.

The risk of repetition is not uniformly distributed across the population and some people repeat DSH on several occasions. In one study, 15% of people admitted to a poisons unit had taken at least 5 overdoses (Kreitman & Casey, 1988). Approximately 50% of DSH admissions have a history of previous DSH (Kreitman & Foster, 1991). In a recent case note review of 20 to 24 year olds, 58% had made at least one previous attempt (Hurry & Storey, 1998). It has been estimated that a repetition rate of 10% can be expected during the first 12 months, rising to 20% over an extended seven-year follow-up (Kerfoot & McHugh, 1992). An estimated 3.6% will die within 5 years, although not all deaths will be due to suicide (Kotila, 1989). The median time to repetition among those with a history of self-harm is about 72 days (Gilbody et al, 1997). However, a quarter of those with a history of past attempts will repeat within 3 weeks. This early repetition often means that few routine psychiatric clinics can offer new appointments within this timescale.

Gilbody, House and Owens (1997) also showed that as the episodes increase in frequency the interval between them becomes shorter. Cohen (1997) commented that this observation could be due to the fact that after each episode those who repeat DSH are returning to the adverse conditions that provoked it in the first place.

1.4.2 Adolescent Repetition of DSH

1.4.2.1 Prevalence of Repetition of Adolescent DSH

Hawton (1986) estimated that approximately 20-30% of adolescents referred to general hospitals following an act of DSH will have engaged in previous self-harm, which in many cases will not have come to the attention of medical services (Hawton et al, 1996). Between 10-15% will carry out a further act within the following year (Hawton & Fagg, 1992).

Based on trends of adolescent DSH in Oxford between 1976-1989, Hawton and Fagg (1992), estimated the annual rate of repetition was around 9% overall. They also found repetition to be higher in adolescents not admitted to the general hospital and in females not referred to the hospital psychiatric service. The rate of completed suicide in adolescents who self-harm has varied in different studies. In a 10-15 year follow-up study of Swedish adolescents who had either taken overdoses or deliberately injured themselves, Otto (1972) reported that 4.3% subsequently died by suicide. Over a mean period of 2.8 years, Goldenacre & Hawton (1985) followed up adolescents who had taken overdoses and found a suicide rate of 0.24%. Although discrepant, both these figures are several times the expected risk of suicide in adolescents in general.

1.4.2.2 Predictive Factors

A number of socio-demographic factors have been linked to the repetition of DSH in adolescents, such as male gender, coming from a large family and not living with parents. Hawton et al (1999) investigated a range of psychological factors which may be important in the repetition of DSH, which could be helpful in identifying treatment intervention targets. Based on factors reported to be of aetiological significance in adolescent DSH, he examined depression (Taylor & Stansfield, 1984), hopelessness (Kazdin et al, 1983), premeditation (Brown, Ebert & Goyer, 1991), impulsivity (Kashden, Fremouw, Callahan, & Franzen, 1993), problem duration (Hawton et al, 1982), and problem solving (Rotherham-Borus et al, 1990). State and trait anger were also included (Plutchik & Van Praag, 1989). Hawton found that repeaters differed from non-repeaters by having far greater depression and

hopelessness scores, lower self-concept scores and higher trait anger scores. They also had poorer problem-solving skills. However, when the analyses were repeated controlling for depression scores, all significant differences disappeared, suggesting depression was a major factor associated with repetition of DSH.

Evans et al (1996) found a highly significant difference in impulsiveness as a personality trait between those with a history of DSH and those presenting following a first episode of DSH, with patients with a history of DSH having higher scores of impulsiveness than those who were presenting for the first time. They concluded that detection of potential repeaters would be aided by the identification of factors (e.g. personality traits) that are less likely to change

Studies focusing on the relationship between sexual abuse and DSH have demonstrated that a history of sexual abuse heightens the risk of repeated DSH (Yeo &Yeo, 1993). A study in the USA found adolescents who had been sexually abused reported more negative coping strategies (such as DSH) than nonsexually abused groups (Cohen et al, 1996).

Summary

The repetition of DSH is important as it greatly increases the risk of completed suicide, places large demands on clinical services and indicates the presence of recurrent social problems. It is estimated that around 50% of people admitted to hospital following DSH have a history of previous self-harm. In addition, 10% will repeat DSH within the first year following admission. This has led researchers to attempt to devise predictive scales which would facilitate the identification of those at highest risk of repetition. Such scales have largely been found to be of limited use

in a clinical setting due to the number of false positives. However, repetition of DSH has been found to be associated with a variety of psychosocial factors including substance misuse, familial suicidal behaviour, greater symptom chronicity, poorer coping histories and higher lethality of DSH. Impulsiveness and a history of childhood sexual abuse have also been found to be significant. Hawton et al (1999) found that repeaters differed from non-repeaters by having higher depression and hopelessness scores, higher trait anger, and lower self-concept and problem solving ability. However, when the effect of depression was controlled for, these effects largely disappeared, indicating that depression was an important factor in repetition of DSH.

1.5 ASSESSMENT OF SUICIDAL RISK

Guidelines for the assessment and management of DSH were produced by the DHSS in 1984, and more recently by the Health Advisory Service and by the Royal College of Psychiatrists (1994). The DHSS guidelines recommended that every patient should have a specialist psychosocial assessment. Such assessment should identify factors associated with suicidal behaviour, determine the motivation of the act, identify potentially treatable mental disorder and assess the continuing risk of suicidal behaviour. A plan for aftercare should be made before discharge from the hospital.

Suicidal intent is a construct that was first described by Beck, Schuyler and Herman (1974). The assessment of suicidal intent relies not only on the attempter's self-report, but also their behaviour. Kingsbury (1993) described suicidal intent as consisting of four factors i.e. belief about intent, preparation before attempt,

prevention of discovery and communication. Items that discriminate between completers and attempters and are related to high suicidal intent include evidence of planning, timing the event so as to avoid detection, confiding suicidal plans ahead of time and expressing a wish to die. High suicidal intent is associated with repetition of DSH and completion of suicide (Brent et al, 1988; Hawton, Osborn, O'Grady & Cole, 1982). Suicidal intent is difficult to assess as most people are ambivalent in their motives and because reported intent may change fairly quickly (Salter & Platt, 1990). Scales to predict suicide have been found to have weak predictive power, because the absolute risk of suicide is so low. The scales used for the prediction of non-fatal self-harm appear to be more effective. The most widely used measure is the Suicide Intent Scale (Beck et al, 1974). The assessment of suicidal risk covers five domains: characteristics of the attempt, current and lifetime suicidality and psychopathology, psychological characteristics, family factors and availability of lethal agents. Adolescents who have self-harmed are at much greater risk of suicide than their peers (Goldenacre & Hawton, 1985). Suicide risk is therefore especially important to assess in an adolescent self-harm population.

The lethality of the attempt is modestly associated with suicidal intent (Hawton, 1987). However, impulsive adolescent attempters may show relatively low intent, and yet engage in an act resulting in relatively high medical damage, such as paracetamol overdose. Conversely, in pre-adolescent children, suicidal acts of low lethality may still be associated with high intent, due to the younger children's lack of knowledge of the lethality of various methods of suicide. Nevertheless, acts of high lethality when the method chosen is typical of those who complete suicide (e.g. hanging, jumping, firearms, carbon monoxide) are associated with an increased risk

of suicide. Self-cutting usually has little suicide intent (Simpson, 1975). The best single predictor of death by suicide is probably a previous suicide attempt (Garland & Zigler, 1993).

1.6 INTERVENTION AND FOLLOW-UP

Specialist aftercare, when it is arranged, usually involves referral to psychiatric outpatients and social services. About 5-10% of cases lead directly to psychiatric admission. In about a quarter of hospitals there is a dedicated multidisciplinary self-harm team, but such teams follow-up only a small minority of cases (Kapur et al, 1998). Non-statutory agencies may also offer help not otherwise provided to people that self-harm, although there has been no recent formal evaluation of these services.

1.6.1 Intervention in an Adolescent Population

One of the key ways to achieve a reduction in suicide rates is to offer effective treatment to DSH patients. Kerfoot and Huxley (1995), commented that "Emotional and behavioural problems in the young are real and demand careful investigation. They cannot simply be dismissed as temporary or self-remitting developmental quirks. The evidence for clear links between depression, antisocial behaviour, substance abuse and suicidal risk is well documented and it is important that these disorders are identified and treated". Often adolescents are not experienced at seeking help for their health problems in general and for emotional problems in particular. The act of DSH may reveal such problems and may open the door for treatment of serious and chronic psychological problems. However, due to a pressure on resources, there is a tendency for assessment in accident and emergency clinics to focus on the danger of repetition or suicide in the very near future. It has

been argued that this may lead to young people deemed not to be at such risk, but with serious psychosocial problems, being discharged without seeing a specialist, especially if they are over 16 years of age (Hurry & Storey, 2000).

There is little consensus regarding appropriate aftercare of adolescents presenting with DSH who do not need inpatient or residential services. O'Dwyer, D'Alton and Pearce (1991) found that the initial assessment of young people who self-harm at an Accident and Emergency department and the subsequent liaison with the child psychiatry department was often unsatisfactory. Aftercare services vary considerably from district to district. It was found that "...although 69% of health districts provided emergency child psychiatry cover for self-harm, 88% did not identify a specific service for prevention of further acts, except for follow-up out-patient appointments". Hawton and Fagg (1992) found that 39% of DSH adolescent patients were referred to out-patient care and 31% were referred back to the general practitioner. Local psychiatry in-patient care was only considered necessary in 2% of cases. Research has indicated that both adults and adolescents who have engaged in suicidal behaviour or DSH are difficult to engage in treatment and follow-up (Taylor & Stansfield, 1984; Kerfoot & McHugh, 1992). According to the type of service reported, 30-70% of those offered psychiatric follow-up either do not attend at all or drop out after their first appointment (Gilbody et al, 1997). Adolescents who self-harm are likely to keep fewer appointments and to remain with an intervention more briefly than other health service users (Trautman, Stewart & Morishma, 1993).

There is an acknowledged lack of rigorous studies on the effectiveness of treatment for self-harming patients, and very little concerning the younger age groups. Eleven of the 13 randomised controlled trials involving adults published since 1980 have

failed to demonstrate that treatment significantly reduces repetition of DSH in adult patients (Van der Sande et al, 1997). The only two studies reporting significant results both employed cognitive behavioural approaches, one offering brief intervention (Salkovskis et al, 1990) and the other more protracted therapy intervention i.e. DBT (Linehan et al, 1991).

1.6.2 Family interventions

Kerfoot, Harrington and Dyer (1995) have developed and evaluated a brief, home-based intervention that lasts for five sessions. The programme is completed within four weeks and all family members are encouraged to attend. The programme makes use of behavioural techniques such as behavioural rehearsal and problem solving, and also includes material concerning intra-familial communication.

In a randomised trial of a brief family intervention with adolescents who had deliberately poisoned themselves, Harrington et al (1998) reported that within the group of patients who did not have major depression, family intervention was significantly superior to routine care in reducing suicidal thinking. Within the group who had major depression family intervention was no more effective than routine care. Harrington, Kerfoot, Dyer et al (2000), looked at the mediating factors related to the improvement seen in the non-depressed group to assess whether changes in family functioning or other variables could account for the difference. This analysis showed that improvement in the non-depressed group was *not* related to changes in family functioning. In addition, no differences were found in measures of hopelessness or problem solving, indicating the beneficial effects of the intervention

on suicidal thinking within the non-depressed group were to some extent independent of those it had on depression.

1.6.3 Psychological Interventions for DSH

There has been relatively little empirical work on the treatment of adolescents who engage in DSH. The studies so far suggest that treatments characterised by more assertive outreach, greater flexibility and focus on dysfunctional cognitions, problem-solving and interpersonal skills are more likely to lead to improved compliance, social adjustment and diminished suicidal ideation and attempts. Brent (1997) recommended a three tier approach to treating suicidal adolescents. This consisted of (1) treatment of the coexisting psychiatric illness; (2) remediation of social and problem solving deficits; and (3) family psychoeducation and intervention. The most promising interventions to date have been found to be Dialectical Behaviour Therapy (DBT) and problem-focussed cognitive behavioural therapy.

1.6.3.1 Problem-Solving Therapy

Problem-solving therapy is a brief treatment aimed at helping the patient acquire basic problem-solving skills, by taking him/her through a series of steps i.e., identification of personal problems; constructing a problem list which clarifies and prioritises them; reviewing possible solutions for a target problem; implementing the chosen solution; reappraising the problem; reiterating the process; training in problem-solving skills for the future. This usually involves about 6 one-hour sessions, with some reading materials and work to be completed between sessions. Lerner and Clum (1990) investigated the impact of a social problem-solving therapy group on college students with clinically significant suicidal ideation, and found this

intervention to be superior to supportive group treatment of depression, hopelessness and loneliness, but not suicidal ideation. McLeavey et al (1994) reported on the efficacy of interpersonal problem-solving skills training (IPSST) compared to a control treatment for young adult self-poisoning patients, and found that IPSST was associated with greater changes in measures of interpersonal problem solving and self-perception. These changes were maintained at one-year follow-up.

1.6.3.2 Dialectical Behaviour Therapy

DBT is a comprehensive treatment originally designed by Linehan (1993) for use with adults with borderline personality disorder and chronic self-harming behaviour. DBT blends cognitive-behavioural approaches mentioned earlier with acceptance–based practices embodied by Zen and other contemplative practices. At the core of treatment is dialectical philosophy. Dialectics stress the value of searching for and finding synthesis between natural tensions in order to bring about change. In DBT, the fundamental dialectic involves finding a balance between a therapeutic focus on change and acceptance strategies. Patients are encouraged, on one hand, to acknowledge and accept emotional experience and, on the other, to push away and prevent negative emotions.

DBT is highly structured, particularly during the initial stage of treatment when the individual is lacking in behavioural control and is consequently engaging in life threatening and dysfunctional behaviours. Treatment goals are hierarchically ordered by importance as follows: (1) reduction of parasuicidal and life-threatening behaviours, (2) the reduction of behaviours that interfere with the process of therapy and (3) reduction of behaviours that seriously interfere with quality of life. DBT

includes four basic modes of treatment, each offered concurrently and each serving a unique function. Weekly individual psychotherapy sessions focus on improving the individual's motivation to work toward obtaining a life worth living. Techniques used in individual DBT sessions include behavioural skill training, contingency management, cognitive modification and exposure to emotional cues, together with supportive techniques such as reflection, empathy and acceptance. The problem focus of each individual DBT session is jointly determined by the above hierarchy and by the patient's behaviour in each targeted area since the last session. Significant instances of DSH are discussed by carrying out a detailed behavioural analysis. In a typical behaviour analysis, a particular behaviour is first clearly defined and then a "chain analysis" is conducted, looking in detail at the sequence of events leading up to the DSH and how these may relate to each other. It is during this process that underlying secondary emotions, which may be inaccessible to the individual due to an early invalidating environment, are linked to primary events and emotions. DBT skills training groups, also provided weekly, emphasise skills acquisition and skills strengthening with the goal of enhancing the individual's capabilities. These skills include interpersonal effectiveness, distress tolerance/reality acceptance skills, and emotion regulation skills. An as-needed telephone consultation is included to ensure generalisation of skills and effective implementation of problem-solving strategies in daily living. A weekly consultation team meeting is also held between DBT therapists for the purpose of enhancing each therapist's own motivation and capability to treat patients.

Koerner and Linehan (2000) have reviewed the literature on the efficacy of DBT for severely disordered patients with BPD. In the initial DBT clinical outcome trial,

DBT was compared to a treatment as usual (TAU) community control group. DBT patients had fewer parasuicidal behaviours, less medically severe parasuicidal behaviour, reduced hospitalisation days, and better retention in treatment after one year of treatment compared to TAU patients. In a subsequent one-year follow-up study, DBT clients continued to engage in significantly fewer parasuicidal behaviours and had fewer psychiatric inpatient days compared to TAU clients (Linehan, Heard and Armstrong, 1993).

Although this therapy has been proven to be effective, the theory on which the techniques are based has not been empirically validated (Kiehn & Swales 2000).

Summary

It is recommended that patients admitted to hospital following DSH receive a specialist psychosocial assessment. It has been found that liaison between psychiatry teams and Accident and Emergency hospital departments is variable and not always satisfactory. In addition, adolescents who have self-harmed are generally more difficult to engage in intervention and follow-up and drop out or do not attend appointments as frequently as other clinical populations.

Research investigating the efficacy of treatment interventions in DSH has generally demonstrated limited outcome. However, studies of problem-solving therapy and dialectical behaviour therapy have shown promising results. Problem-solving therapy involves a brief intervention focussing on the acquisition of problem-solving skills such as problem clarification, generating and implementing solutions and rehearsing the learned skills. Dialectical Behaviour Therapy (DBT) involves group-based acquisition of behavioural skill training, cognitive modification and exposure

to emotional cues. Distress tolerance and emotional regulation skills are seen as key deficits in DSH and are therefore emphasised throughout DBT intervention In addition, individuals receive weekly individual therapy in which they formulate a chain analysis. This examines the sequence of events leading up to DSH and focuses on the role of secondary emotions which may be linked to primary events and emotions. The role of emotion in DSH shall now be discussed in further detail with particular reference to DBT.

1.7 THE ROLE OF EMOTIONS IN DSH

1.7.1 Primary and Secondary Emotions

The concept of primary and secondary emotions introduced above is integral in the theory of DBT. Primary emotions are thought to be the person's most fundamental, original reactions to a situation. They organise adaptive action and give us information about our reaction to events or situations. There is evidence that there are a limited set of emotions from which more complex emotions are derived through additional cognitive processing of self and self-other relationships (Power & Dalgleish, 1997).

Secondary emotions are those responses that are secondary to other, more primary internal processes and may be ways of avoiding these processes (McCullough, 1997), for example feeling angry in response to feeling hurt or feeling afraid about feeling angry. Secondary emotions need to be explored in order to get at their more primary origins. Based on DBT theory, Greenberg and Bolger (2001) proposed that a two-step sequence of processing can occur in emotional expression. For example, anger is often thought to be a reaction to an original or primary feeling of sadness, hurt or

vulnerability that is overregulated. The anger is easily experienced, but the individual has learned (perhaps through the early experience of an invalidating environment) that it is unsafe to experience and/or share the original sadness/hurt/vulnerability, and therefore, the latter feelings are overcontrolled. If the individual is unable to access the primary emotion beneath the secondary response, effective problem-solving and change will not occur.

A three-step sequence has also been proposed by Greenberg and Bolger (2001) which involves first acknowledging secondary despair, hopelessness or rage; secondly accessing the primary maladaptive feelings of shame or fear beneath the first state; and thirdly, accessing more adaptive emotions, usually healthy anger or sadness, that are overregulated or are not readily accessible. They propose that this three-step sequence can present conflict about feeling a newly accessed primary adaptive emotion. For example, clients in therapy may begin therapy feeling sad and hopeless, and through exploration may access anger at violation but then feel guilt or anxiety about their anger. Such emotional linking is achieved in the chain analysis of DBT.

1.7.2 Emotion Regulation and DBT

The DBT biopsychosocial theory of borderline personality disorder (BPD) views the disorder as primarily one of pervasive emotional dysregulation, which occurs due to both high emotional vulnerability and deficits in the ability to regulate emotions (Linehan, 1993). Linehan views most dysfunctional behaviours in individuals with BPD as either attempts by the individual to regulate intense affect or outcomes of emotional dysregulation. Thus, individuals may deliberately self-harm as a means of

refocusing attention away from emotionally salient stimuli and thereby reduce anguish, or they may respond violently when overwhelmed by rage.

DBT views emotions as involving a full system response, and not merely the individual's phenomenological experience of the emotion. From such a perspective, emotions include biochemical changes in the brain, physiological changes (e.g. changes in heart rate, body temperature, muscle tone, and nerve conduction), and action tendencies associated with the emotion (e.g. withdrawal with sadness, attack with anger, flight with fear). Expressive behaviours included in this emotion system include body language (e.g. facial and postural changes) and verbal communication of the emotion as well as other nonverbal communication behaviours (e.g. hitting, running away, hiding). The assumption with regard to these expressive behaviours is that they exist because they contribute to the survival of the organism. Bioevolutionary research suggests that there are a number of basic innate primary emotions, each with a characteristic facial expression and action tendency (Ekman & Friesen, 1975). Although this full system response may include cognitive interpretations associated with a specific precipitating event that elicited the emotion, cognitions are not viewed as always being present.

In addition, DBT assumes that emotions are prompted by events (either internal or external) and function to organise and motivate action. Emotions inform individuals about the personal significance of situations (Frijda, 1986). When functional, emotion can focus and direct attention to a particular environmental event while immediately and efficiently preparing the individual physiologically and psychologically for the event. Additionally, emotion provides individuals with information about their needs and tells them how to appraise themselves and their

world (Lazarus, 1991). In this way emotions are self-validating in that they affirm one's perception and interpretations of events. The accurate identification of all emotional responses, both primary and secondary, is therefore critical to the regulation of emotions.

Linehan (1993) argued that an invalidating environment communicates to an individual that their descriptions and understanding of their experience are fundamentally wrong. The child is therefore not taught to label internal experience or to regulate emotional arousal. In addition, these individuals do not learn to trust their own thoughts and feelings as accurate and legitimate responses to internal and environmental events. Rather, they are taught to invalidate their own perceptions and to scan the environment for cues about how to react. An invalidating environment also conveys to individuals that their experiences are due to socially unacceptable and undesirable character traits. For example, an individual is "bad" for feeling angry, or "weak" for feeling afraid. As negative expressions of emotions are unlikely to be tolerated, the child's expressions of needs are ignored or punished, and the child fails to learn effective strategies to manage his/her intense emotions. Individuals in the environment only attend to the more escalated displays of emotion, thereby inadvertently and intermittently reinforcing more extreme behaviours. Thus, the individual learns that extreme displays are necessary to achieve an environmental response. The combination of neglect or punishment of emotional expression and intermittent reinforcement of extreme displays teaches the child to oscillate between emotional inhibition and extreme emotional states. The inhibition of emotions is also likely to interfere with the development of the individual's ability to sense expressive-motor responses (e.g. facial expressions and body posture) associated

with basic emotions and accurate communication of these emotions to others. Because the ease of solving life's problems is trivialised, the child does not learn to tolerate distress or to have realistic expectations and goals. Although it is not the case that all people who self-harm have BPD, the concept of emotion regulation would also seem to be of relevance in self-harm as a whole.

1.8 FRUSTRATION/DISCOMFORT TOLERANCE, REBT AND DSH

The theme of frustration tolerance and its potential role in DSH has been discussed in Rational Emotive Behaviour Therapy (REBT). REBT was first described by Albert Ellis in 1955. Ellis published "Reason and Emotion in Psychotherapy" in 1962 which developed a number of his ideas concerning REBT as a system of psychotherapy.

The concept of low frustration tolerance (LFT) and ego anxiety was central to Ellis' understanding of emotional disturbance. Ego anxiety was defined by Ellis (1962) as a "global negative evaluation of the self". Low frustration tolerance describes emotionally disturbing beliefs related to undesirable life conditions. According to REBT, individuals with LFT make themselves disturbed by believing that they cannot stand or bear frustration.

In REBT, it is hypothesised that there are three basic irrational beliefs which are central to discomfort anxiety/frustration tolerance. These beliefs concern both the individual and the universe i.e. (1) " I must succeed at the important things that I do in life and win the approval of significant people in my life, and it is awful when I don't. I am therefore not as good as I should be, and I am worthless." (2) "You must treat me kindly, fairly, and considerately, and it is horrible when you don't."

(3) "The conditions under which I live must be easy, or at least not too difficult, and must give me all the things I really want quickly and without too much of a hassle, and it is terrible when they aren't that way. The world is a really rotten place in which to live and should not be the way it indubitably is." (Ellis, 1973). Ellis hypothesised that individuals with depression often hold a combination of these beliefs. Ellis surmised that an "implicit grandiosity" therefore underlies all emotional disturbance i.e. "I must succeed and be universally approved; you must treat me kindly and fairly; and the world conditions must be easy and immediately gratifying for me." Therefore, in individuals with low frustration/discomfort tolerance, it could be seen that when this condition (invariably) is not met, the individual may experience discomfort anxiety (from feeling unable to tolerate the frustration) and engage in DSH to relieve this anxiety. From this perspective, individuals were thought to be "short-range hedonists" who aim for immediate gain or relief (Ellis, 1976). Therefore, in REBT the therapist would aim to encourage clients to stay with discomfort to show that it is only inconvenient and not unbearable.

1.9 EMOTION REGULATION, DISTRESS TOLERANCE AND DSH: THEORIES AND HYPOTHESES.

From both a DBT and REBT perspective of DSH it is suggested that when the intensity or quality of an emotional experience exceeds a tolerable level, coping strategies are employed to diminish it. Effective and adaptive coping strategies are critical in successfully negotiating difficult emotional states. However, a number of maladaptive, yet temporarily effective, coping strategies are also available to serve

the same function of managing and reducing affective expression. Self-harm is one such strategy (Wiser & Arnow, 2001).

In adolescence, the biological, cognitive and emotional changes highlighted earlier may contribute to depressed mood and emotional dysregulation. This is especially the case in those adolescents with particular vulnerabilities attributable to environmental and constitutional factors. Therefore, the role of emotion regulation and the ability to tolerate distress and frustration may be of key importance in understanding how an adolescent comes to self-harm. The ability to tolerate particularly aversive emotions such as shame, guilt, anger, fear and sadness may be diminished in those individuals who have grown up in an invalidating environment, through experiences of abuse and neglect. In addition, if these deficits in functioning are not addressed, the adolescent may continue to repeat DSH as a coping mechanism into adult life. Given the increasing rate of adolescent DSH, investigation of factors related to self-harm in this age group is of critical importance if effective interventions and preventative strategies are to be designed. The repetition of DSH places the adolescent at increased risk of completed suicide and also puts pressures on health resources. To date, research indicates that depression, specifically hopelessness, may be the primary factor in the repetition of DSH, although the level of depression does not seem to fully explain the whole picture of DSH. Research is therefore needed to investigate whether the concepts of distress tolerance and emotion regulation are valid in an adolescent DSH population and whether these could be used as indicators of repetition, over and above the self-rated level of depression.

If the theoretical models were to be validated, it would be expected that there would be significant differences in scores on measures of these variables between an adolescent self-harming population and a clinical comparison group. In addition, the correlation of depression and DSH has been emphasised throughout the literature (e.g. Kerfoot et al, 1996, Hawton, 1986). Therefore, the relationship between depression and the variables under investigation in this study is also examined. It is hoped that this will provide a clearer understanding of how depression may interact with the tolerance of emotion and frustration.

1.10 AIMS

The aims of this study are as follows:

(A) To investigate whether deliberate self-harm (DSH) is linked to self-reported depression, (as measured by the Beck Depression Inventory-Second Edition, (Beck et al, 1996)).

(B) To investigate whether deficits in distress/frustration tolerance (as measured by the Frustration-Discomfort Scale, (Harrington, 2001)) are linked to DSH.

(C) To investigate whether DSH is linked to deficits in emotional tolerance (as measured by the Basic Emotion Scale, (Power, 2000)).

(D) To investigate whether the role of secondary emotions (for example, sadness following anxiety) is different in a DSH population compared to a non-DSH population. Specifically, whether individuals with a history of DSH experience a greater degree of negative secondary emotions in response to primary negative emotions.

(E) To investigate whether frustration tolerance is correlated with self-reported depression.

(F) To investigate whether emotion tolerance is correlated with self-reported depression.

(G) To investigate whether distress tolerance and emotion regulation are independent of self-reported depression.

(H) To investigate factors which might be associated with repeated DSH.

1.11 HYPOTHESES

A1: The level of self-reported depression, (as measured by the BDI-II), will be significantly higher in the DSH group in comparison to the non-DSH group.

B1: DSH participants will report more difficulty tolerating frustration/distress (as measured by the Frustration-Discomfort scale) than participants in the non-DSH group.

C1: Participants in the DSH group will report more difficulty in tolerating emotions when compared to a non-DSH group, as measured by the Emotion Tolerance Scale.

D1: Participants who have self-harmed will experience a greater degree of coupling of primary negative emotions with negative secondary emotions (i.e. anger, sadness, anxiety and shame), compared to participants in the non-DSH group.

E1: Frustration/distress tolerance score (as measured by the FDS) will be correlated with the level of self-reported depression (as measured by the BDI-II) across the total participant population.

F1: Emotion tolerance score will be correlated with self-reported depression (as measured by the BDI-II) across the total participant population.

G1: Statistically controlling for the effect of depression (as measured by the BDI-II) will reduce the statistical significance of any differences found between the DSH and non-DSH groups.

H1: Individuals with a history of prior DSH will report higher levels of depression (as measured by the BDI-II) than first-time self-harmers or non-self-harmers.

H2: Individuals with a history of previous DSH will report more difficulty in tolerating frustration/distress compared to non-self-harmers and first episode self-harmers.

H3: Compared to non-self-harmers and first time self-harmers, individuals with a history of DSH will report more difficulty in tolerating emotion (as measured by the emotion tolerance scale). In particular, emotions linked to "disgust" and "anger" will be especially difficult to tolerate.

H4: A higher degree of negative emotion coupling shall be reported in the repeat DSH group compared to both the first time DSH and non-DSH groups.

2. METHOD

2.1 PREPARATION

Prior to conducting the study, the feasibility of interviewing patients admitted to the Royal Infirmary of Edinburgh following an overdose/deliberate self-harm was discussed with the Consultant Liaison Psychiatrist (Dr George Masterton). The research proposal was also presented to other members of the Department of Psychological Medicine.

Ethical approval for the study was obtained from both the Lothian Research Ethics Committee and the Grampian Research Ethics Committee. Management approval was also gained from Lothian Primary Care NHS Trust and Lothian University Hospitals NHS Trust.

2.2 PARTICIPANTS

Experimental Group

Inclusion Criteria:

Participants consisted of patients who had been admitted overnight to the toxicology department (Ward 1a) of the Royal Infirmary of Edinburgh, after presenting to A&E having deliberately taken an overdose. The age range of participants was between 16-21 years. Participants for whom reading/writing was problematic were included, as questionnaire items were verbally presented and responses noted by the researcher.

Exclusion Criteria:

Any patients with a learning disability or for whom English was not a first language were excluded. Patients who had an active psychotic illness were also excluded. Patients who had clearly not *deliberately* overdosed e.g. through recreational drug use, were also excluded. Patients who were assessed (by nursing or medical staff) as being medically or psychiatrically unfit to participate were not included.

In total, 45 participants were included in this group. The group consisted of 13 males and 32 females. There was a very low refusal rate, with 2 females and 1 male declining to participate.

Comparison Group

Initially, a matched comparison group of non-self harming adolescents with a primary diagnosis of depression was targeted for recruitment. However, it became apparent that a significant proportion of adolescents at the Young People's Unit in Edinburgh with a diagnosis of depression were also self-harming or had a history of self-harm. This finding presented challenges in terms of recruiting a large enough sample within the time scale. Therefore, it was decided to broaden the inclusion criteria.

Inclusion Criteria:

The comparison group therefore consisted of an adolescent general clinical population who were receiving treatment in relation to a range of mental health problems, but had *never* engaged in DSH (including self-harm or self-poisoning). The age range of participants was between 16-21 years. Patients were recruited from three sources. (1) The Young People's Unit at the Royal Edinburgh Hospital; (2) the

Young People's Service at the Royal Cornhill Hospital, Aberdeen and (3) the Adult Service also based at the Royal Cornhill Hospital.

Exclusion Criteria:

Patients with an active psychotic illness or who were currently self-harming or had a history of DSH were excluded from the study. Patients with a learning disability or for whom English was not a first language were also excluded.

In total, 20 participants were included in the comparison group. This consisted of 7 males and 13 females.

2.3 MATERIALS, MEASURES AND RATING SCALES

(i) Beck Depression Inventory- Second Edition (Beck et al, 1996).

The BDI-II was chosen to assess the severity of depression in this study, as this instrument has been used in a number of previous research studies of DSH, making cross-comparisons more valid. It is also a valid instrument for use in an adolescent population (aged 13 years and over). The BDI is also one of the most widely accepted instruments for assessing the severity of depression in diagnosed patients and for detecting depression in a normal population.

The BDI-II has been shown to have a high reliability, with the average coefficient alpha for psychiatric patients being in the high .80's. The concurrent and construct validity of the BDI-II with respect to a variety of psychological measures has also

been established. The BDI-II also differentiated patients with clinical depression from non-depressed psychiatric patients.

The BDI-II is a 21-item self-report instrument which is based on typical descriptive statements reported frequently by people with depression. Each item is rated on a 4-point scale from 0-3 in terms of severity. Patients are asked to endorse the most characteristic statement of how they have been feeling over the preceding two weeks. Scores on the BDI-II are then interpreted, and given labels which estimate the overall severity of the depression. The cut-off scores are (i) minimal (0-13), (ii) mild (14-19), (iii) moderate (20-28) and (iv) severe (29-63).

(ii) The Basic Emotion Scale (Adapted) (Appendix I)

Primary Emotions

This self-report measure was based on the theoretical construct of emotions proposed by Oatley and Johnson-Laird (1987). This theory proposed five basic emotions i.e. happiness, anger, fear, sadness and disgust. From these basic emotions it was proposed that more complex emotions could be formed. For example, "nostalgia" would be formed by a "coupling" of Sadness and Happiness (Power & Dalgleish, 1997). This five basic emotion model was found to be the most powerful for examining and understanding emotions and emotional experiencing (Power, in press)

For each of these basic emotions, an additional five related emotions were derived. These are outlined below:

Anger – frustration, irritation, aggression, jealousy, resentful

Sadness – despair, misery, defeated, gloominess, mournful

Disgust – shame, guilt, repulsion, humiliated, blameworthy

Fear – anxiety, nervousness, tense, worried, shy

Happiness – joy, elation, pride, loving, cheerful

In the original scale, participants were asked to rate each of these 30 emotion terms on a seven-point scale (from 1= Never to 7= Very Often) indicating how frequently they experienced the emotion. This scale was adapted by the researcher by asking a different question i.e. how difficult or easy it was for participants to cope with or tolerate that particular emotion on a scale from 1 (Very Easy) to 7 (Very Difficult).

Secondary Emotions

The second part of this questionnaire examined the participant's experiencing of secondary emotions in response to four key primary emotions. The four primary emotions selected were sadness, anger, anxiety and shame. These emotions were selected as they have been found to be of particular salience in a DSH population.

For each of these four primary emotions, participants were asked to rate how often, on a seven-point scale (from 1- never to 7- very often) they ever felt, *either at the same time or soon afterwards*, any of the following 7 emotions:

Anger

Sadness

Disgust

Anxiety

Happiness

Guilt

Shame

This scale therefore provides an overall negative emotion coupling score i.e. the extent to which negative emotions are "coupled" with other negative emotions e.g. sadness about feeling angry, sadness about feeling sad etc. "Happiness" was removed from the analysis.

(ii) **Frustration-Discomfort Scale (Appendix II)**

The Frustration-Discomfort scale aims to measure beliefs that are hypothesised to underlie the construct of "low frustration tolerance" (Ellis, 1979) in Rational Emotive Behaviour Therapy (REBT). The scale has been shown to comprise four factors. These are "emotional discomfort", "self-entitlement", "comfort" and "achievement frustration". The emotional discomfort scale measure in particular is akin to the DBT construct of Distress Tolerance.

The internal consistency of the full scale is high (Cronbach alpha of . 9514) as is that of each of the sub-scales (alphas respectively .9072, .8870, .8955, and .8206). The full scale comprises of 47 items, comprising of three sub-scales of 13 items and an achievement sub-scale with 8-items.

The four factors were conceptualised as representing different facets of frustration intolerance. Comfort is related to demands for ease and the avoidance of hassles. Emotional discomfort is concerned with the intolerance of emotional distress, which as mentioned above, is a similar construct to distress intolerance in DBT. Self-entitlement comprises demands that one's desires are met by the world and other people, and intolerance of this expectation being frustrated. Lastly, the final factor relates to the intolerance of achievement frustrations.

Studies have supported the construct validity of the measure. An investigation of the relationship of frustration intolerance to self-harming behaviour *in adults* indicated that the "emotional discomfort" sub-scale was a significant predictor of self-harming behaviour. Logisitc regression indicated that a further frustration sub-scale, self-entitlement, interacted with self-harm but was mediated through feelings of anger. Emotional discomfort beliefs were mediated through feelings of tension as was self-esteem. Self-esteem was also directly related to self-harming, possibly due to self-esteem measures reflecting both beliefs as well as a feeling of worthlessness. Once self-esteem was controlled for, neither "comfort" or "achievement" sub-scales were significant predictors of DSH. Structural equation modelling suggested that a model incorporating self-esteem, self-entitlement and emotional discomfort beliefs mediated by emotion variables, anger and tension/anxiety, was a good fit for the data.

This measure was selected as there is currently no instrument to measure the DBT construct of distress intolerance. The Frustration-Discomfort scale however includes emotional discomfort which measures the intolerance of emotional distress and has been shown to be predictive of self-harming behaviour in an adult population. This current study therefore will be able to investigate whether this finding holds in an adolescent population, or whether other subscales relating to general frustration tolerance may be more predictive.

2.4 PROCEDURE

Experimental Group

The researcher telephoned the Toxicology Ward at the Royal Infirmary of Edinburgh each morning to ascertain whether any patients in the age range of 16-21 years had been admitted following an act of DSH. If there were individuals in this age range, the researcher visited the ward and asked nursing staff whether they considered potential participants were psychologically and medically fit to be approached and take part in the study. Those patients who were assessed as being fit, were then verbally introduced to the study by the researcher and given a Patient Information Sheet (see Appendix III). Following medical assessment by the toxicologist, patients were again approached by the researcher and asked whether they would be interested in participating. This allowed approximately 30 minutes for patients to consider their decision to participate.

Patients who agreed to participate were then asked to sign the consent form (see Appendix IV). The three questionnaires were briefly explained to the participant,

and an opportunity for questions was provided. Participants were then asked to complete the questionnaires. Following completion (which took an average of 20 minutes), the researcher asked a number of background information questions, which included items on the nature of the DSH, precipitating events and biographical information (see Appendix V). If consent was given, the participant's General Practitioner was informed of their inclusion in the study (see Appendix VI.).

Comparison Group

Potential participants who fulfilled inclusion criteria for the comparison group and were suitable/able to take part in the research were identified by clinicians working in the mental health services listed above. These identified patients were then asked by the clinician if they would be interested in participating in the study. The Patient Information Sheet was given to the individual by the clinician to provide further information. The information sheet was amended for this group (see Appendix VII.). If the individual was interested in participating, the researcher briefly met with them before their subsequent appointment with the clinician to introduce himself and arrange a time to meet to complete the questionnaires. Usually, participants met with the researcher immediately after their appointment with the clinician. If it was not possible to complete the questionnaires with the participant (e.g. due to time constraints etc.), they were given the research questionnaires, background information questionnaire and the consent form in a stamped addressed envelope to complete at home and subsequently return. This postal method of completion was implemented with all participants recruited from the Grampian region.

3. RESULTS

The distribution of the data across the total participant population was analysed and tested for skewness and kurtosis (see Appendix VIII.). This revealed that the data was normally distributed. Due to the unequal group sizes, Levene's test for homogeneity of variance was also used. The variance between the experimental and comparison groups was found to differ less than two times, therefore indicating that parametric tests could be used. As the data was also at the ordinal level of measurement (with more than 20 possible values on each of the scales), the assumptions of ANOVA were considered to be fulfilled. ANOVA is believed to be a robust test, therefore decreasing the likelihood of making a Type I or Type II error.

A prospective power analysis was carried out with the level of power set at 0.80. Following Cohen's (1988) recommendation, a medium effect size (η^2 =0.059) was used in the calculation of the sample size. This calculation indicated that for a between-subjects ANOVA design, where df=2, 50 participants would be needed in each group.

3.1 Demographics of the Groups

(i) Age

The mean ages of the Experimental and Comparison groups (i.e. DSH and Non-DSH) were analysed using an independent t-test. A statistically significant difference was found between the groups for age (Table 3.1-1). The lower mean age of the comparison group was due, in part, to the lower age range of referrals accepted at the Young People's Unit (14-19 years) and the apparent low numbers of older adolescents (19-21 years) seen in adult mental health services. These results indicate

the need to control for differences between the groups which may be attributable to age in later analyses.

Table 3.1-1: Mean age of the experimental and comparison groups.

Group	Mean	SD	t-value	df	Probability
DSH n=45	18.71	1.79	3.274	63	0.002
Non-DSH n=20	17.35	1.42			

(ii) Sex

The distribution of sexes of the two groups were analysed using a chi-square test. There was no significant difference between the groups for sex (Table 3.1-2).

Table 3.1-2: Sex composition of the two groups

Group	Sex		Pearson chi-square	df	Probability (2-tailed)
	Male	Female			
DSH n= 45	13	32	0.243	1	0.62
Non-DSH n= 20	7	13			

3.2 DIFFERENCES BETWEEN THE DELIBERATE SELF-HARM (DSH) GROUP AND NON DELIBERATE SELF-HARM (NON-DSH) GROUP

Table 3.2-1 shows a summary of the mean scores, standard deviations and significance levels between the two groups on all of the measures and sub-scales.

Table 3.2-1: Comparison of Mean Scores, Standard Deviations (SD) and Significance Levels on Measures and Sub-Scales between the DSH and Non-DSH Group

Scale/Sub-Scale	DSH Group (n=45)		Non-DSH Group (n=20)		Significance Level	
	Mean	SD	Mean	SD	F	p
Total Depression Score (BDI-II)	*34.42	14.58	22.90	11.48	8.71	0.004
Total Frustration-Discomfort Scale Score (FDS)	83.37	25.56	74.30	20.80	1.751	0.191
Emotional Discomfort sub-scale	25.26	7.11	20.45	6.83	6.45	0.014
Achievement sub-scale	21.04	8.47	19.90	7.00	0.439	0.510
Self-Entitlement sub-scale	20.68	8.29	19.85	7.32	0.262	0.610
Comfort sub-scale	16.66	6.38	16.90	4.30	0.001	0.982
Emotion Tolerance	123.33	29.17	102.8	26.28	7.13	0.01
Anger sub-scale	18.86	5.11	13.90	4.48	13.05	<0.001
Sadness sub-scale	24.02	6.02	20.15	6.14	7.83	<0.001
Disgust sub-scale	22.88	6.70	17.40	5.86	10.76	<0.001
Fear sub-scale	22.48	7.15	21.55	7.22	0.23	0.63
Happiness sub-scale	9.84	6.00	8.35	3.92	1.036	0.313
Total negative emotion coupling	106.28	27.84	76.0	26.72	14.57	<0.001
Secondary neg. emotion coupling with Anger	26.71	8.63	18.65	7.67	11.51	<0.001
Secondary neg. emotion coupling with Sadness	26.62	7.06	18.80	7.73	14.57	<0.001
Secondary neg. emotion coupling with Anxiety	24.64	8.69	18.90	6.95	11.51	<0.001
Secondary neg. emotion coupling with Shame	28.31	8.51	19.65	7.31	15.82	<0.001

*Significant differences are shown in bold type

As age was found to be significantly different between the DSH and non-DSH groups, an analysis of covariance (ANCOVA) was therefore carried out with age as a covariate in all of the following analyses.

3.2.1 Depression

Hypothesis A1: The level of self-reported depression, as measured by the (BDI-II), will be higher in the DSH group compared to the non-DSH group.

An ANCOVA was used to analyse differences in scores on the BDI-II, between the two groups. A highly significant difference was found ($F(1,62)=8.71$; $p=0.004$), with the DSH group scoring higher than the Non-DSH group. This supports the above hypothesis.

3.2.2 Frustration-Discomfort Scale (FDS)

Hypothesis B1: Participants who have engaged in DSH will report more difficulty tolerating frustration/distress (as measured by the Frustration-Discomfort scale) than a non-DSH group.

The overall Frustration-Discomfort Scale score was analysed using an analysis of covariance (ANCOVA). There was no significant difference between the two groups ($F(1,62)=1.751$; $p=0.191$) on this scale. This hypothesis was therefore not supported.

3.2.2.1 FDS Sub-scales

In order to test whether there were particular scales within the FDS that demonstrated differences between the DSH and non-DSH groups, an ANCOVA was carried out on each of the sub-scales. These included "Emotional Discomfort", "Achievement", "Self-Entitlement" and "Comfort". A statistically significant result was found on the

Emotional Discomfort sub-scale ($F(1,62)=6.45$; $p=0.014$). This result is commensurate with the finding of Harrington (2001) who found that this sub-scale best predicted self-harming behaviour in an adult population. The Emotional Discomfort sub-scale is also consistent with the DBT concept of "distress tolerance". However, no other sub-scale of the FDS, including "self-entitlement" showed significant differences between the two groups. Therefore, this data supports the hypothesis of a statistically significant difference in "emotional discomfort", but does not support the hypothesised difference in "self-entitlement" scores.

3.2.3 Emotion Tolerance

Hypothesis C1: Participants who have engaged in DSH will report more difficulty in tolerating emotions, as measured by the Emotion Tolerance scale, when compared to a non-DSH group.

An analysis of covariance was used to investigate differences in the overall emotion tolerance score between the two groups. This showed a highly significant difference ($F(1,62)=7.13$; $p=0.01$) between the groups, with the DSH group reporting more difficulty tolerating emotions compared to the non-DSH group. This result is therefore consistent with the hypothesis.

3.2.1.1 Emotion Tolerance sub-scales

Anger

The Anger sub-scale items of the Emotion Tolerance scale were subjected to an analysis of covariance to investigate differences between the groups. This demonstrated a highly statistically significant difference ($F(1,62)=13.05$; $p< 0.001$),

with the DSH group scoring more highly than the non-DSH group. This result confirms the hypothesis that the DSH group report anger to be more difficult to tolerate, compared to the non-DSH group.

Sadness

An ANCOVA was performed on the Sadness sub-scale items. This showed a highly significant difference between the two groups ($F(1,62)=7.83$; $p<0.001$), with the DSH group scoring higher than the non-DSH group.

Disgust

An ANCOVA was performed on the Disgust sub-scale items. This showed a highly significant difference ($F(1,62)=10.76$; $p< 0.001$) between the groups, with the DSH group reporting more difficulty in tolerating feelings of disgust than the non-DSH group. This confirms the hypothesis.

Fear

An ANCOVA was performed on the Fear sub-scale. This did not show a significant difference between the two groups ($F(1,63)= 0.23$; $p=0.63$). This indicates that the self-reported ability to tolerate emotions related to "fear" does not differentiate between the DSH and non-DSH group.

3.2.4 Tension

In order to determine whether the DSH group would report greater difficulty tolerating feelings of tension compared to a non DSH group, an ANCOVA was performed. This showed that there was not a significant difference between the DSH and non-DSH groups ($F(1,62)=0.449$; $p=0.505$).

3.2.5 Secondary Negative Emotions

Hypothesis D1: It is hypothesised that participants who have self-harmed will experience a greater degree of coupling of primary negative emotions (i.e. anger, sadness, anxiety and shame) with negative secondary emotions, compared to a non self-harming group.

In order to test the above hypothesis, an ANCOVA was carried out, comparing the total degree of negative emotions coupled with the primary emotions of sadness, anger, anxiety and shame. This revealed a highly significant difference ($F(1,62)=14.57$; $p<0.001$), with the DSH group showing a higher degree of negative emotion coupling compared with the non-DSH group. Analyses of covariance were also carried out on the four individual primary emotions to assess whether there was any variation in the degree of negative coupling. This analysis showed that each emotion demonstrated a highly significant degree of difference between the DSH and non-DSH group, with the DSH group reporting a higher degree of coupled negative secondary emotion. The differences between the two groups in the degree of secondary negative emotions coupled with the negative primary emotions were as follows: Anger ($F(1,62)=11.51$; $p<0.001$), Sadness ($F(1,62)=14.57$; $p<0.001$), Anxiety ($F(1,62)=11.51$; $p<0.001$), and Shame ($F(1,62)=15.82$; $p<0.001$). These results confirm the hypothesis.

3.3 CORRELATIONS ACROSS THE TOTAL SAMPLE

3.3.1 Frustration-Discomfort Scale

Hypothesis E1: It is hypothesised that frustration/distress tolerance score (as measured by the FDS) will be positively associated with the level of self-reported depression (as measured by the BDI-II).

A Pearson correlation was carried out to test the above hypothesis. A significant positive correlation was found ($r=0.362$; $p=0.002$; 1-tailed, $n=65$). This data confirms the hypothesis that the level of frustration/distress tolerance is correlated with depression.

As the "emotional discomfort" sub-scale score on the FDS was found to be significantly different between the DSH and Non-DSH groups, a Pearson correlation was carried out to investigate whether emotional discomfort was correlated with depression. This showed a highly significant positive correlation ($r=0.616$; $p<0.001$; 1-tailed, $n=65$). In addition, this sub-scale was also found to correlate with the total Emotion Tolerance Scale ($r=0.604$; $p<0.001$, 1-tailed, $n=65$) and the total negative emotion coupling score ($r=0.702$; $p=0.001$, 1-tailed, $n=65$).

3.3.2 Emotion Tolerance

Hypothesis F1: It is hypothesised that emotion tolerance score will be correlated with self-reported depression (as measured by the BDI-II).

A Pearson correlation was used to test the above hypothesis. There was a highly significant correlation between the two scores ($r=0.456$, $p<0.001$; 1-tailed, $n=65$). This indicates that self-reported difficulty in tolerating emotions is correlated with depression.

The subscales of the Emotion Tolerance scale were cross-correlated to investigate the inter-relatedness of the scales. As can be seen from table 3.3-2 below, there was a high degree of cross-correlation on all scales.

Table 3.3-2: Correlation Matrix of Emotion Tolerance Sub-Scales.

		Anger	Sadness	Disgust	Fear	Happiness
Correlation (r)	**Anger**	1.000	.546	.553	.481	.301
	Sadness	.546	1.000	.700	.654	.248
	Disgust	.553	.700	1.000	.643	.238
	Fear	.481	.654	.643	1.000	.240
	Happiness	.301	.248	.238	.240	1.000
Sig. (1-tailed)	**Anger**		.000	.000	.000	.007
	Sadness	.000		.000	.000	.023
	Disgust	.000	.000		.000	.028
	Fear	.000	.000	.000		.027
	Happiness	.007	.023	.028	.027	

3.3.3 Secondary Negative Emotions

A highly significant positive correlation was found between the total negative emotion coupling score and score on the BDI-II ($r=0.604$, $p<0.001$; 1-tailed, $n=65$).

3.3.4 Emotion Tolerance and Negative Emotion Coupling

A Pearson correlation was performed to investigate the relationship between reported emotion tolerance and the degree of negative emotion coupling. This showed that the two measures were highly correlated ($r=0.715$; $p<0.001$, 1-tailed, $n=65$)

3.3.5 Emotion Tolerance Scale and Frustration-Discomfort Scale

A Pearson correlation of the total Emotion Tolerance score and the Frustration-Discomfort Scale (FDS) score was carried out. This showed that the two scales were highly correlated ($r=0.462$, $p<0.001$; 1-tailed, $n=65$).

As both the Emotion Tolerance scale and the FDS were shown to correlate with BDI-II score, a Pearson partial correlation was performed, controlling for the possible effect of BDI-II score on this relationship. This showed that although the degree of correlation decreased, a statistically significant correlation between the FDS and the Emotion Tolerance scale remained ($r=0.358$, $p=0.002$; $n=65$).

3.4 DIFFERENCES BETWEEN THE DELIBERATE SELF-HARM (DSH) GROUPS AND THE NON DELIBERATE SELF-HARM GROUP (NON-DSH), CONTROLLING FOR BDI-II SCORE.

Hypothesis G1: It is hypothesised that statistically controlling for the effect of depression (as measured by the BDI-II) will reduce the statistical significance of any differences found between the DSH and non-DSH groups.

From the above analysis of the data, it was clear that a number of the scales were highly correlated with self-reported depression. Therefore, the following analyses were repeated controlling for the effect of BDI-II score. This was achieved by including depression as a covariate in analysis of covariance.

Emotion Tolerance.

An ANCOVA was performed on the total Emotion Tolerance data. No statistically significant difference remained between the groups on the total Emotional Tolerance scale ($F(1,61)=2.40$; $p=0.127$). However, significant differences remained between the groups on the Anger sub-scale ($F(1,61)=7.75$; $p=0.007$) and the Disgust sub-scale ($F(1,61)=5.196$; $p=0.026$). The difference on the Sadness sub-scale no longer remained ($F(1,61)=3.14$); $p=0.081$). This suggests that the difference between the DSH and non-DSH groups reported ability to tolerate emotions related to anger and disgust are not attributable to BDI-II score.

Emotional Discomfort Sub-scale

An analysis of covariance, with BDI-II score as a covariate was performed on the Emotional Discomfort sub-scale of the Frustration Discomfort Scale. No statistically significant difference remained between the two groups ($F(1,61)=0.945$; $p=0.335$). This suggests that differences between the two groups for Emotional Discomfort score are attributable to differences in BDI-II score. This data does not describe the direction of this relationship i.e. whether Emotional Discomfort results in a high BDI-II score or whether a high BDI-II score results in Emotional Discomfort.

Secondary Negative Emotions

An ANCOVA with BDI-II score as a covariate was performed on the total negative emotion coupling score. A significant difference remained between the two groups ($F(1,61)=6.10$; $p=0.016$). Analysis of the negative emotion sub-scales showed that no statistically significant difference remained between the groups on the Anger Coupling sub-scale ($F(1,60)=2.42$, $p=0.094$), Sadness Coupling sub-scale ($F(1,60)=2.06$; $p=0.136$), or Anxiety Coupling ($F(1,60)=0.824$; $p=0.443$). However, a significant difference remained on the Shame Coupling sub-scale ($F(1,60)=4.964$); $p=0.010$). This suggests that, overall, the differences between the groups in the degree of negative coupling of emotions are not attributable to BDI-II score. However, coupling scores on the anger, anxiety, and sadness sub-scales do appear to be attributable to BDI-II score.

3.5 DIFFERENCES BETWEEN INDIVIDUALS WITH AND WITHOUT A HISTORY OF DELIBERATE SELF-HARM.

3.5.1 Demographics of Repeat DSH, First Time DSH & Non-DSH Groups

In order to test the hypotheses relating to factors associated with repeat DSH, the total population was separated into groups according to whether individuals had a history of previous self-harm. The frequency and ages of the three sub-groups are shown below in table 3.5-1.

Table 3.5-1 Mean ages of the DSH groups and non-DSH group

Group	n	Mean Age	SD
No DSH + no history	20	17.35	1.42
First Time DSH	20	18.85	1.78
Repeat DSH	25	18.60	1.82
Total	65	18.29	1.79

An analysis of variance was performed to investigate whether there was a significant age difference between the groups. This was found to be significant ($F(1,62)=4.56$; $p=0.014$). The mean age of the "No DSH" group was significantly lower than both the self-harm groups. There was no significant difference in age between the self-harm groups ($F(1,43)=0.876$; $p=0.510$). This indicated that it was necessary to control for the age differences in subsequent analyses.

Table 3.5-2 shows the sex composition between the three groups. A Chi-Square test was used to establish whether there were any significant differences between the distribution of sexes in the groups. The result of this analysis showed that there was no significant differences between the groups ($\chi^2=2.32$; $df=2$, $p=0.312$, $n=65$).

Table 3.5-2: Distribution of sexes between the three groups

Group	Males	Females	Total
No DSH + no history	7	13	20
First time DSH	8	12	20
Repeat DSH	5	20	25
Total	20	45	65

Table 3.5-3 below shows the mean values for each of the measures and sub-scales across the three groups.

Table 3.5-3: Mean values and SD's of each measure and sub-scale

Scale	No DSH (n=20)		First Time DSH (n=20)		Repeat DSH (n=25)		Significance Level	
	Mean	SD	Mean	SD	Mean	SD	F	p
Total BDI-II score	***22.90**	11.48	**25.50**	10.84	**41.56**	13.89	15.36	**<0.001**
Total Emotion Tolerance	**102.80**	26.28	**117.95**	27.60	**127.64**	30.87	4.19	**0.020**
Anger sub-scale	**13.90**	4.48	**17.75**	5.09	**19.76**	5.04	7.50	**0.001**
Sadness sub-scale	**20.15**	5.69	**23.25**	6.16	**24.64**	5.90	5.31	**0.021**
Disgust sub-scale	**17.40**	5.86	**23.0**	6.21	**22.80**	7.43	5.31	**0.007**
Fear sub-scale	21.55	7.23	21.65	7.55	23.16	6.71	3.71	0.692
Happiness sub-scale	8.35	3.92	7.85	6.31	11.44	5.06	3.02	0.056
Total negative emotion coupling score	**76.00**	26.72	**98.95**	22.25	**112.16**	32.68	8.76	**0.001**
Anger negative coupling	**18.65**	7.68	**23.85**	7.81	**29.00**	8.93	8.24	**0.001**
Sadness negative coupling	**18.80**	7.73	**24.35**	4.86	**28.44**	8.72	8.178	**0.001**
Shame negative coupling	**19.65**	7.31	**27.70**	7.53	**28.80**	9.78	7.88	**0.001**
Anxiety negative coupling	**18.90**	6.95	**23.05**	6.94	**25.92**	10.46	0.347	**0.037**
Total FDS score	74.30	20.80	78.85	26.34	87.00	24.46	1.49	0.232
Emotion Discomfort sub-scale	**20.45**	6.83	**22.70**	6.18	**27.32**	7.50	5.89	**0.005**
Achievement sub-scale	19.90	7.00	21.65	9.15	20.56	7.72	0.33	0.720
Comfort sub-scale	16.90	4.30	15.15	6.52	17.88	6.03	1.19	0.309
Self-Entitlement sub-scale	19.85	7.32	20.80	8.87	20.60	7.72	0.13	0.874

***Statistically significant differences shown in bold type**

3.5.4 Depression and Repeat DSH

Hypothesis H1: Individuals with a history of prior DSH will report higher levels of depression (as measured by the BDI-II) than first-time self-harmers or non-self-harmers. Items on the BDI-II relating to hopelessness and suicidal thoughts and wishes shall be higher in the repeat DSH group than the other two groups.

An analysis of covariance was performed on the data to investigate whether there were significant differences between the three groups on level of depression. A highly significant difference was found ($F(2,61)=15.36$; $p<0.001$). A Tukey post-hoc analysis showed that this effect was due to differences between the repeat DSH group and both the first-time DSH group and non-DSH group. This result indicates that individuals in the repeat DSH group reported significantly higher levels of depression than both participants in the non-DSH group and the first time DSH group.

The Hopelessness item on the BDI-II (question 2) was analysed using an ANCOVA, with age as a covariate, to assess the presence of differences between the groups. This showed a highly significant difference ($F(2,61)=8.526$; $p=0.001$). A Tukey post-hoc analysis showed that this effect was due to differences between the non-DSH group and the repeat DSH group and the first time DSH and repeat DSH group, with the repeat DSH group scoring higher than the two other groups.

An ANCOVA was repeated on the data to investigate whether the differences between the groups remained, when age and Hopelessness were included as covariates. A reduced, but significant difference remained between the groups ($F(2,61)=6.228$, $p=0.003$)

The item relating to suicidal thoughts and wishes (question 9) was also analysed using an ANCOVA (with age as a covariate), to assess differences between the groups. This showed a highly significant difference between the groups ($F(2,61)=17.894$; $p<0.001$), with the DSH groups scoring more highly than the non-DSH group. A result approaching significance was also found between the first time and repeat DSH group, with the repeat DSH group scoring more highly ($p=0.054$).

3.5.5 Frustration-Distress Tolerance and the Repeat DSH

Hypothesis H2: Individuals with a history of previous DSH will report more difficulty in tolerating frustration/distress compared to non-self-harmers and first episode self-harm.

To test this hypothesis, an analysis of covariance (ANCOVA) was performed on the overall score on the FDS between the three groups, with age as a covariate. There were no significant differences found between the three groups ($F(2,61)=1.49$; $p=0.232$). An ANCOVA was also performed on each of the sub-scales of the FDS to investigate differences between the three groups. This showed that Emotional Discomfort was the only sub-scale which was significantly different ($F(2,61)=5.89$; $p=0.005$). A Tukey's post-hoc analysis showed that this effect was due to significant differences between the "no DSH" group and the "repeat DSH" group. The other sub-scales of the FDS did not approach statistical significance; Achievement ($F(2,61)=0.33$; $p=0.720$), Self-Entitlement ($F(2,61)=0.13$; $p=0.874$), and Comfort ($F(2,61)=1.19$; $p=0.309$). This therefore indicates that people with a history of DSH do experience a higher degree of emotional discomfort than non-self-harmers.

However, there were no significant differences between scores relating to "first time" DSH and non-DSH or between repeat DSH and first time DSH.

3.5.6 Emotion Tolerance and Repeat DSH

Hypothesis H3: Compared to non-self-harmers and first time episodes of DSH, individuals with a history of DSH will report more difficulty in tolerating emotion (as measured by the emotion tolerance scale).

An analysis of covariance was performed, with age as the covariate, across the three groups, to investigate whether people with a history of DSH did report more difficulty in tolerating emotions compared to the other two groups. This analysis showed that there were group differences ($F(2,61)= 4.19$; $p=0.020$). A Tukey post-hoc test showed that this effect was due to differences between the "no DSH" group and the "repeat DSH" group. This indicates that repeat self-harmers do report more difficulty in tolerating emotion compared to a non-DSH group. However, there was no significant difference in emotion tolerance scores between the repeat and first time DSH groups or between the first time and non-DSH groups.

The sub-scales of the Emotion Tolerance measure were also analysed using an ANCOVA, with age as the covariate, to investigate differences between the three groups.

Anger

A significant difference was found between the three groups ($F(2,61)=7.50$; $p=0.001$). A Tukey post-hoc anaysis showed that this effect was due to differences between both the first-time DSH and non-DSH, and between repeat DSH and non-

DSH. This indicated that anger was reported to be significantly more difficult to tolerate by both the repeat DSH group and first time DSH groups, compared to non self-harmers. However, no significant difference was found between the first time DSH and repeat DSH groups.

Disgust

A significant difference was found between the three groups ($F(2,61)=5.31$; $p=0.007$). A Tukey post-hoc analysis showed that this effect was due to differences between the non-DSH group and first-time DSH and between the non-DSH group and the repeat DSH group. This demonstrated that the experience of "disgust-based" emotions is reported to be more difficult to tolerate in the self-harm group compared to the non self-harm group. However, no significant difference was found between the first time DSH and repeat DSH groups.

Sadness

A significant difference was found between the groups ($F(2,61)=5.31$; $p=0.021$). A Tukey post-hoc analysis demonstrated that this was due to differences between the non-DSH and repeat DSH group, with the repeat DSH group reporting more difficulty in tolerating emotions associated with sadness than the non-DSH group. There was not a significant difference between the repeat DSH and first-time DSH groups or between the first time DSH group and the non-DSH group.

Fear

No significant difference was found between the groups on "fear" based emotions ($F(2,61)=3.71$; $p=0.692$).

Happiness

A difference approaching statistical significance was found between the groups on emotions relating to "happiness" ($F(2,61)=3.02$; $p=0.056$). A Tukey post-hoc test showed that this was due to differences between the repeat DSH group and the non-DSH group.

3.5.7 Negative Emotion Coupling

Hypothesis H4: A higher degree of negative emotion coupling shall be reported in the repeat DSH group compared to both the first time DSH and non-DSH groups.

An analysis of covariance was performed to test the hypothesis that individuals who have repeated DSH will report a higher degree of negative emotion coupling compared to the other two groups. The total negative emotion coupling score was therefore compared across the three groups. A highly significant difference was found between the groups ($F(2,61)=8.76$; $p=0.001$). A Tukey post-hoc analysis showed that this effect was due to differences in scores between both the first-time and non-DSH group and the non-DSH and the repeat DSH groups. Therefore, the DSH group did report a higher degree of negative emotion coupling compared to a non-DSH group, although no significant difference was found between the repeat

DSH and first time DSH groups. This finding therefore does not support the above hypothesis.

Subsequent analyses of the sub-scales which contributed to the negative emotion coupling score all demonstrated statistically significant differences between the groups.

Negative Emotion Coupled with Sadness

A Tukey post-hoc analysis showed that negative emotion coupled with Sadness was significantly different between both the first time DSH group and the non-DSH group and the non-DSH group and the repeat DSH group ($F(2,61)=8.178$; $p=0.001$). This indicated that the repeat DSH group and first time DSH group reported more negative emotion coupled with the experience of sadness compared to non self-harmers. However, no significant differences were found between repeat and first time self-harmers.

Negative Emotion Coupled with Anger

A highly significant difference was found between the three groups on the degree of negative emotion coupled with Anger ($F(2,61)=8.24$; $p=0.001$). A Tukey post-hoc analysis showed that this effect was due to differences between the non-DSH group and the repeat DSH group, with the repeat DSH group reporting more difficulty in anger tolerance than the non-DSH group. No significant differences were found between the first time DSH group and the repeat DSH group or the non-DSH group.

Negative Emotion Coupled with Shame

A highly significant difference was found between the three groups ($F(2,61)=7.88$; $p=0.001$). A Tukey post-hoc analysis showed that this difference was due to differences between first-time DSH and non-DSH and between non-DSH and repeat DSH. This indicated that the self-harm groups reported more secondary negative emotion coupled with shame than non-self-harmers. No significant differences were found between repeat and first time DSH.

Negative Emotion Coupled with Anxiety

A significant difference was found between the groups ($F(2.61)=0.347$; $p=0.037$). A Tukey post-hoc analysis showed that this was due to differences between the non-DSH group and the repeat DSH group, with the repeat DSH group reporting more difficulty in anxiety tolerance than the non-DSH group. No significant difference was found between the first-time DSH group and the repeat DSH group or the non-DSH group.

Logistic Regression

A logistic regression was performed to investigate potential factors which may be predictive of inclusion in the repeat DSH group. However, due to the small numbers of participants recruited in the DSH group (n=45), the findings of this analysis can only be regarded as tentative. Table 3.5-7 shows the variables entered into the regression equation.

Table 3.5-7: Output data of logistic regression.

Variables Entered in Regression Equation	β	S.E.	Sig. (p)
Total Depression Score (BDI-II)	**.144**	.051	**.005**
Total Emotional Tolerance Scale	.040	.038	.298
Anger Tolerance	.034	.133	.796
Disgust Tolerance	-.230	.140	.099
Total Negative Emotion Coupling Score	-.027	.081	.743
Negative Emotion Coupled with Anger	.063	.127	.619
Negative Emotion Coupled with Sadness	.011	.163	.947
Negative Emotion Coupled with Shame	-.015	.118	.898
Emotion Discomfort Sub-scale Score	-.027	.091	.765

This model was found to account for 55% of the variance (R^2 =0.55) and correctly identified 80% of the repeat DSH cases.

Summary of findings related to differences between participants with and without a history of DSH.

The above analyses showed that the only variable which demonstrated a statistically significant difference between the repeat DSH group and the first time DSH group was the BDI-II score, with the repeat group reported a significantly higher degree of depressive symptoms compared to the first episode DSH group. However, there are a number of variables which show significant differences between the non DSH group and both first time and repeat DSH. The variables which have been shown to be independent of BDI-II score and which also demonstrate differences between first episode DSH and non-DSH include tolerance of emotions related to anger and disgust, the total degree of negative emotion coupling and the degree of negative secondary emotions coupled with sadness and shame. In terms of the DSH groups (i.e. first time and repeat DSH), the only variable which was shown to significantly predict inclusion in the repeat DSH group was BDI-II score.

3.6 IMPULSIVITY

A contingency table (table 3.6-1) was constructed to investigate the frequency of the reported impulsive nature of the DSH across the repeat DSH and first time DSH groups. Impulsivity was indexed by asking the participant whether or not the DSH was planned.

Table 3.6-1 Contingency table of frequency of impulsive or planned episodes of DSH reported by the "first time" DSH group and the repeat DSH group.

	Impulsive DSH	Planned DSH	Total
First time DSH	11	6	17
Repeat DSH	7	14	21
Total	18	20	38

A chi-square analysis was carried out to investigate differences in the frequencies between the two groups. This showed a result approaching statistical significance (χ^2 =3.70; df=1, p=0.054, n=38), with more impulsive DSH acts being carried out by the first time DSH group and more planned DSH being carried out by the repeat DSH group.

Analyses of variance (ANOVA) were conducted to investigate whether there were any differences on measure scores between those reporting an impulsive act of DSH compared to those who reported a planned act of DSH. This analysis showed that the only variable which demonstrated significant statistical difference between the

two groups was BDI-II score ($F(1,36)=4.11$; $p=0.050$), with the planned DSH group reporting higher BDI-II scores than the impulsive DSH group.

3.7 SUICIDAL INTENT

A correlation matrix was constructed to investigate variables that may be associated with suicidal intent. Suicidal intent was indexed by asking participants whether they had intended to kill themselves at the time of the DSH. A Point-Biserial correlation showed that BDI-II score and Emotional Discomfort were the only factors associated with reported suicidal intent (Emotional Discomfort ($r_{pb} = -0.409$, 2-tailed; $p=0.011$, $n=38$); BDI-II score ($r_{pb} = -0.352$, 2-tailed; $p=0.030$, $n=38$). As expected, a Point-Biserial correlation confirmed that the item relating to suicidal thoughts and wishes on the BDI-II was highly correlated with stated suicidal intent ($r_{pb}=-0.522$, 2-tailed; $p=0.001$, $n=38$).

4. DISCUSSION

This study set out to explore the relationship between deliberate self-harm and the ability to tolerate distress/frustration in addition to a number of emotions. The relationship between depression and an individual's ability to tolerate emotion and frustration was also investigated. The findings of this study are discussed with reference to each of the main hypotheses, and are linked to the previous published research outlined in Section 1. The clinical applications of the study are also discussed together with suggestions for future research in this area.

4.1 DIFFERENCES BETWEEN THE SELF-HARM AND NON-SELF-HARMING GROUPS.

A number of hypotheses were generated in relation to expected overall group differences. The primary theoretical models which informed this research were Dialectical Behaviour Therapy (DBT) and Rational Emotive Behaviour Therapy (REBT). Both of these models view deficits in the tolerance of feelings and emotions to be key in self-harming behaviour. However, no empirical research has been conducted to evaluate these theoretical constructs in adolescence. Therefore, this study attempted to investigate the role of emotion tolerance and frustration/distress tolerance in an adolescent self-harming population.

Hypothesis A1: The level of self-reported depression, (as measured by the Beck Depression Inventory-Revised (BDI-II)), will be higher in the DSH group compared to the non-DSH group.

BDI-II score was found to be significantly higher in the DSH group (both repeat and first time self-harm groups) compared to the non-DSH group. This confirmed the above hypothesis. As Section 1.2.1 indicated, there has been some debate regarding the exact relationship of depression and self-harming behaviour. Some authors have seen depression as being key (Taylor & Stansfield, 1984) while others have concluded that it is particular features of depression which are important, for example, hopelessness (Beck et al, 1985, McLaughlin et al, 1996). These findings indicate the need to carefully screen for depression when assessing adolescents who have deliberately self-harmed and also ensure effective treatment of depression in this population. Cognitive behaviour therapy has been shown to be an effective approach in the treatment of depression in adolescents (Brent et al, 1997). This usually includes the targeting of problem solving skills. As outlined in section 1.6.2, there is also evidence for the effectiveness of a brief problem-solving approach applied to the whole family, including home-based sessions where indicated.

However, research has indicated that the reported incidence of depression is much higher when using self-report rating scales (such as the BDI-II) compared to the use of an objective clinical interview using DSM IV criteria (Ennis et al, 1989). Kerfoot et al (1996) also found that depressive symptoms can rapidly reduce following an act of DSH. These two studies, therefore, suggest that although individuals who have self-harmed may score highly on depression rating scales, the rapid reduction in depressive symptoms which can follow DSH suggests that depressive symptoms may

not always be part of a clinical depression syndrome. Therefore, in terms of this research study, although self-reported depressive symptoms were found to be higher in the DSH group, it does not necessarily follow that this population had a higher incidence of major depression. However, it may indicate a higher degree of general pychopathology and experienced distress. This distinction is important in terms of treatment, as antidepressant medication is unlikely to be of benefit to those who do not meet diagnostic criteria for major depression, despite reporting high levels of subjective distress. Therefore, alternative psychological interventions such as DBT may perhaps be more appropriate and effective for those individuals who are highly distressed but who do not meet criteria for a clinical diagnosis of depression.

Hypothesis B1: Participants who have engaged in DSH will report more difficulty tolerating frustration/distress (as measured by the Frustration-Discomfort scale) than a non-DSH group.

The Frustration-Discomfort scale was designed to measure beliefs that are hypothesised to underlie the REBT construct of "low frustration tolerance" (Ellis, 1979). REBT classifies beliefs leading to emotional distress into two categories; those relating to the intolerance of discomfort and those relating to self-worth. The scale has four factors; Emotional Discomfort, Achievement, Self-Entitlement and Comfort. This scale was therefore used to investigate the role of these factors in a DSH population. It was hypothesised that the DSH group would report more difficulty overall in tolerating factors relating to frustration and discomfort than a non-DSH group.

No significant overall differences were found on this scale between the groups. This is an interesting finding as it suggests that items relating to demands for ease and comfort (Comfort sub-scale), demands that one's desires are met by the world and other people (Self-Entitlement sub-scale) and the intolerance of expectation being frustrated (Achievement sub-scale) are not necessarily of clinical relevance in an adolescent DSH population. However, the Emotional Discomfort sub-scale score was found to be higher in the DSH groups compared to the non-DSH group. Emotional Discomfort is concerned with the intolerance of emotional distress, and is therefore similar to the Dialectical Behaviour Therapy (DBT) construct of distress intolerance. As highlighted in Section 1, the DBT construct of distress tolerance is primarily concerned with the acceptance of difficult situations and the ability to "stay with" the distress rather than terminate the feeling through self-destructive means. The findings in this study are also largely consistent with those found by Harrington (2000) who found that Emotional Discomfort was a significant predictor of self-harming behaviour in an adult population, mediated through feelings of tension. A significant correlation between tolerance of tension and Emotion Discomfort was also found in this study. In addition, Harrington found that Self-Entitlement interacted with self-harm through feelings of anger. However, Self-Entitlement was not significantly different between the groups in this study. A possible explanation for this could be that an adult population may have more demands that their desires are met and have a stronger sense of "entitlement" compared to an adolescent population. Self-entitlement may therefore have less relevance at the adolescent developmental stage. Overall, however, the differences between the groups in the tolerance of emotional discomfort or distress is consistent with the REBT and DBT

theoretical understanding of self-harming behaviour and therefore does add confirmatory evidence to the hypothesised role of distress intolerance in self-harm.

Hypothesis C1: Participants who have engaged in DSH will report more difficulty in tolerating emotions when compared to a non-DSH group.

The Emotion Tolerance scale was used in this study to investigate whether there was an overall deficit in the ability to tolerate emotions in an adolescent DSH population. It also examined whether there were particular emotions which were reported to be particularly difficult to tolerate in a DSH group compared to a general clinical comparison group.

This study found that the DSH groups did report more difficulty overall in tolerating emotion compared to the non-DSH group. This finding is consistent with the theoretical understanding of disturbed emotion regulation in DSH, although clearly this study was not able to assess the process through which such disturbance may have formed. On further analysis, it was found that feelings of anger, sadness and disgust were reported to be particularly difficult to tolerate in the DSH group. This finding is generally consistent with the major theoretical perspectives of DSH. Examples of this include the psychodynamic understanding of DSH as self-directed anger and repulsion towards the self in response to sexual and aggressive drives (Himber, 1994; Freud, 1958; Daldin, 1988), the cognitive-behavioural constructs of anger and despair related to hopelessness (Ryan, 1998) and the DBT focus of DSH as a response to "overwhelming intensely painful negative emotions" (Linehan, 1991). This is also compatible with Hawton's finding that adolescents frequently describe wanting to escape from unbearable feelings of anger or isolation

(Hawton et al, 1982). In addition, Power and Dalgleish (1997) hypothesised that in the case of individuals with a history of childhood abuse or neglect, emotions of anger, shame and disgust towards the body or self may be experienced as particularly aversive and intolerable and therefore result in DSH.

No differences between the DSH and non-DSH group were found in the tolerance of "fear" emotions. These included anxiety, nervousness, tension, worry and shyness. Given that one of the most frequently reported functions of DSH is the release of tension, this is an unexpected finding. This result may reflect differences in the function of overdosing and cutting. Cutting may represent a physiological drive to release a feeling of tension, which is experienced as being unbearable. Overdosing, however, does not deliver such an immediate nor visible release of tension and therefore may not be directly associated with this feeling or experience.

These findings are interesting as they are generally consistent with the above theoretical understanding regarding the aversive nature of anger and shame in a self-harming population. Again, the genesis of this aversion has not been investigated in this study, for example, whether it is due to self-repulsion in response to unconscious drives, the result of abuse or neglect or due to an individual's emotional vulnerability or environmental learning.

As highlighted in Section 1.9, the concept of Emotion Regulation is central to DBT and REBT. Linehan (1993) viewed deficits in the ability to regulate emotions as a result of both high emotional vulnerability and an early invalidating environment where an individual's emotional responses to events were ignored or criticised. Emotion tolerance and affective regulation are therefore seen as being disturbed in individuals who self-harm, especially when associated with borderline personality

disorder, as they are taught to invalidate their own perceptions and are not taught how to label internal experience or regulate emotional arousal. Self-harm is therefore seen as a strategy to reduce affective expression (Wiser & Arnow, 2001)

Hypothesis D1: Participants who have self-harmed will experience a greater degree of coupling of primary negative emotions (i.e. anger, sadness, anxiety and shame) with negative secondary emotions, compared to a non self-harming group.

Overall, the DSH group reported a higher degree of coupling of secondary negative emotions with primary negative emotions compared to the non-DSH group. This finding supports the importance of secondary emotions in an adolescent self-harming population and is consistent with the DBT concept of the role of secondary emotion in DSH.

Section 1.7 outlined the theory of secondary emotion and DSH. The potential role of secondary emotions in DSH forms a major part of DBT theory and practice. The theory holds that due to an early invalidating environment, individuals may learn to experience negative emotions in response to primary emotions (e.g. guilt following anger). An act of DSH may therefore occur in response to this secondary guilt emotion leaving the initial anger response masked and invalidated. The completion of a detailed chain analysis is aimed to provide the individual with greater awareness of both primary emotions and the secondary emotions which have become "automatic" responses to these. In turn, the original emotional response can be "brought to the fore" enabling exploration, understanding and validation and (it is hoped) eventual resolution or regulation.

A significant positive relationship between the Emotion Tolerance scale and the overall degree of negative emotion coupling was also found, which may suggest that difficulties in tolerating emotions in a self-harming population may be related to the degree of negative emotion which is experienced at the same time, or soon after feeling these emotions. The results showed a highly significant difference between the DSH and non-DSH groups in the degree of negative emotion coupled with anger, sadness, anxiety and shame.

4.2 CORRELATIONS ACROSS THE TOTAL SAMPLE

Hypothesis E1: Frustration/distress tolerance score (as measured by the FDS) will be positively associated with the level of self-reported depression (as measured by the BDI-II).

The relationship between depression and the ability to tolerate frustration was investigated to establish whether the two variables showed a significant correlation, which may increase understanding of how these two variables may be related.

This analysis showed that there was a significant positive correlation between the two scales, suggesting that frustration intolerance is related to self-reported depression i.e. as the degree of reported depressive symptoms increases, the reported level of frustration intolerance correspondingly increases, and vice versa. Therefore, although there was not found to be an overall difference between the DSH and non-DSH groups on this measure, the FDS score was related to depression. This suggests that the hypothesised association between DSH and depression is not mediated through general frustration intolerance, as self-harmers were not found to have a

significantly higher degree of frustration intolerance compared to the non self-harming group but were found to score significantly higher on the BDI-II.

The Emotional Discomfort sub-scale on the FDS, however, demonstrated significant differences between the DSH and non-DSH groups and was also highly positively correlated with BDI-II score, total Emotion Tolerance score and total negative emotion coupling score. This suggests that Emotional Discomfort may be an important feature related to depression that is particularly relevant in DSH. The direction of this relationship however cannot be established from the data i.e. whether depression leads to deficits in Emotion Discomfort, or whether these deficits lead to depression. In reality, this relationship is likely to be reciprocal as depression may decrease an individual's ability to tolerate emotion or distress, and the experience of feeling unable to cope may further increase depressive symptomatology.

Hypothesis F1: Emotion tolerance score will be associated with self-reported depression (as measured by the BDI-II).

A significant positive correlation was found between BDI-II score and emotion tolerance score. This suggests that, as there was also a significant difference between the DSH and non-DSH groups in self-reported ability to tolerate emotions, depression and emotional tolerance interact in a self-harming population. Again, this relationship is likely to be reciprocal, with depression contributing to difficulties in tolerating emotion and these deficits in emotional tolerance increasing the severity of

depressive symptoms, as individuals may feel unable to cope with the feelings associated with low mood.

A correlation matrix demonstrated that the ability to tolerate each of the five basic emotions (i.e. anger, sadness, disgust, fear and happiness) significantly correlated with each other. This suggests that there is a consistency in the ability to tolerate emotion. As might be expected, the correlations between the ability to tolerate negative emotions and ability to tolerate happiness were less strong, as the happiness related emotions were generally rated as being easier to tolerate.

A significant positive correlation was also found between the Emotion Tolerance scale and the FDS score. This association also remained at a significant level after the BDI-II score was partialled out. This suggests that the ability to tolerate frustration and the ability to tolerate specific emotions are related, and may therefore indicate an underlying deficit in tolerance of feelings and emotions which is not mediated by BDI-II score. This finding suggests that psychological interventions with adolescents who have self-harmed may be targeted usefully at addressing potential deficits in frustration/emotion tolerance.

4.3 DIFFERENCES BETWEEN THE DSH AND NON-DSH GROUPS, CONTROLLING FOR BDI-II SCORE.

Hypothesis G1: Statistically controlling for the effect of depression (as measured by the BDI-II) will reduce the statistical significance of any differences found between the DSH and non-DSH groups.

The analyses examining differences between the DSH and non-DSH groups were repeated, controlling for the effect of depression. This analysis revealed that no statistically significant difference remained overall between the groups on the

Emotion Tolerance scale after controlling for BDI-II score. However, differences did remain on measures of anger and disgust tolerance with self-harmers having less tolerance for these emotions than non self-harmers. This suggests that tolerance of anger and disgust may be specific variables involved in self-harm, which are also independent of the level of depression. This finding is consistent with previous research which has found anger and shame to be particularly salient in DSH (Power & Dalgleish, 1997; Kaplan & Pokorny, 1976).

The difference in the Emotion Discomfort sub-scale scores between the DSH and non-DSH groups also failed to reach significance after BDI-II score was controlled for. This suggests that the group differences for the emotion discomfort sub-scale were attributable to BDI-II score. The contribution of depression to an individual's difficulty in tolerating distress is not clear. For example, it is possible that depressed mood could effect aspects of irritability, hopefulness and energy, and thereby impair the individual's ability to effectively utilise coping resources, including the tolerance of emotion and distress. Similarly, it is also possible that an inability to cope with distress may contribute to lowered mood.

Significant differences between the groups remained on the overall extent of reported negative emotion coupling, after BDI-II score was controlled for. However, the only sub-scale which continued to achieve statistical significance between the groups was the extent of negative emotion coupled with shame. Differences in negative emotion coupling on sadness, anger and anxiety failed to reach significance after controlling for BDI-II score. This suggests that most of the difference which was found in negative emotion coupling score between the two groups is attributable to BDI-II score. This result is generally consistent with the earlier finding which suggested

that difficulty in tolerating primary feelings of anxiety and sadness are attributable to BDI-II score. Therefore, in an adolescent self-harming population, it appears that the degree of negative emotion experienced either at the same time as, or soon after experiencing shame-based emotions, is significantly higher than in a non-DSH group and is also independent of BDI-II score. This is an interesting finding, as it appears that certain elements of negative emotion coupling are mediated through depression i.e. sadness, anger and anxiety, whereas negative emotion coupled with shame is independent of depression. One possible explanation for this apparent discrepancy may be due to an increased feeling of shame and associated negative emotions experienced by people who had taken an overdose and been admitted to hospital, which is independent of depression.

4.4 DIFFERENCES BETWEEN INDIVIDUALS WITH AND WITHOUT A HISTORY OF DELIBERATE SELF-HARM.

Section 1.4 highlighted the importance of repeat DSH in terms of increased risk of completed suicide and the extent of resources used by individuals who repeatedly self-harm (Kral & Sakinofsky, 1994). Therefore, a number of hypotheses were generated to examine whether the variables under investigation in this study may be associated with repeat DSH. In order to achieve this, the total participant population was divided into three groups according to their self-harm history. These were (i) No DSH and no history, (ii) First time DSH, and (iii) Repeat DSH. The results of this analysis are discussed below.

Hypothesis H1: Individuals with a history of prior DSH will report higher levels of depression (as measured by the BDI-II) than first-time self-harmers or non-self-harmers.

Given that depression has been found in previous research to be a key factor in the repetition of DSH in an adolescent population (Hawton et al, 1999), it was hypothesised that a similar result would be found in this study. BDI-II score was found to be significantly higher in the repeat DSH group compared to both the first time DSH and non-DSH groups. This suggests that the degree of reported depressive symptoms may be a significant variable involved in the repetition of DSH, although this remains hypothetical, as it was not possible to follow-up individuals who had only self-harmed on one occasion when they took part in the study, but subsequently engaged in further episodes of DSH.

Previous research has found that hopelessness is the key variable in the repetition of DSH (Kazdin et al, 1983) and that the effect of depression in repetition is cancelled out after controlling for hopelessness (Beck et al, 1985). To examine this finding in this study, the "pessimism" item of the BDI-II was analysed as a guide to the degree of hopelessness experienced by the participants. This analysis showed that the repeat DSH group scored significantly higher than both the first time DSH and non-DSH groups, indicating that hopelessness may be an important factor in repeat DSH. However, a statistically significant difference remained between the groups on BDI-II score even after the "pessimism" item was controlled for. These findings suggested that both depression and hopelessness scores were significantly higher in the repeat DSH group and may therefore be potential predictive psychological variables involved in the repetition of DSH. A logistic regression confirmed that

BDI-II score was the only variable which was predictive of repeat DSH group membership. However, this finding can only be regarded as speculative due to the relatively small numbers used in this study and because a standardised and reliable measure of hopelessness was not used in the study. Targeted interventions such as problem-solving, which was discussed in Section 1, may therefore be indicated, as this has been found to be an effective intervention in DSH and may provide the young person with skills to manage difficult situations effectively, thereby increasing their sense of hopefulness about the future and their ability to affect change.

Hypothesis H2: Individuals with a history of previous DSH will report more difficulty in tolerating frustration/distress compared to non-self-harmers and first episode self-harm.

It was hypothesised that the repeat DSH group would report a significantly higher degree of frustration intolerance than the other two groups. However, no overall significant difference was found between the groups. Given the earlier finding that there were no overall differences in FDS score between the DSH and non-DSH group, this was an expected result.

A significant difference was found on the Emotional Discomfort sub-scale score between the non-DSH group and repeat DSH groups, with the repeat group reporting higher Emotional Discomfort than the non-DSH group. However, no significant differences were found between the first time DSH group and both the repeat and non-DSH group. This result suggests that the ability to tolerate emotional discomfort/distress is significantly impaired in a repeat DSH group compared to the non-DSH group, although is not significantly higher than that of individuals who

have self-harmed for the first time. This result may therefore provide some support for the DBT skills-based intervention for repeat self-harmers, as it focuses on the acquisition of distress tolerance and emotion regulation. However, in terms of predicting factors which might indicate the likelihood of repeat DSH, Emotional Discomfort score does not significantly differ between repeaters and first timers or first timers and the non-DSH group. The high Emotional Discomfort scores from the repeat DSH group therefore appears to have accounted for the overall differences between the DSH and non-DSH groups in Emotional Discomfort tolerance which was discussed earlier.

Hypothesis H3: Compared to non-self-harmers and first time self-harmers, individuals with a history of DSH will report more difficulty in tolerating emotion (as measured by the emotion tolerance scale).

Differences between the three groups in the reported ability to tolerate emotion were analysed. A significant difference was found between the non-DSH group and the repeat DSH group, although no significant differences were demonstrated between the first time DSH and both the non-DSH and repeat DSH groups. This indicates that the repeat DSH group did report significantly more difficulty in tolerating emotions, compared to the non-DSH group. However, no significant differences were found between the first-time DSH and non-DSH groups or the repeat DSH group which suggests that the ability to tolerate emotion is not significantly lower in repeat self-harmers compared to those who have self-harmed on the first occasion.

The sub-scales of the Emotion Tolerance measure were individually examined to investigate whether there was any variation between the groups in reported tolerance

of particular categories of emotion. Analysis of items relating to Anger-based emotions (frustration, irritation, aggression, jealousy, resentment) showed that there were significant differences between the three groups in self-reported tolerance of anger, with both the repeat and first time DSH groups scoring significantly higher than the non-DSH group. This result suggests that adolescent self-harmers do experience significantly more difficulty in coping with anger-based emotions compared to a clinical comparison group. Anger intolerance was also found to be independent of BDI-II score. This result is also consistent with previous research which suggests that feelings of anger may be experienced as being particularly intolerable for some individuals who have self-harmed, especially when there is a prior history of abuse or neglect. This may have important therapeutic implications in terms of targeted interventions in DSH, as feelings of anger may be associated with other negative emotions such as fear and guilt. These underlying emotions may need to be addressed in order for individuals to be able to experience and express anger in a non self-damaging way. However, there was not a significant difference in anger tolerance score between the first time DSH group and the repeat DSH group. No conclusions can be reached about the absence of a difference between the two DSH groups, although it may be hypothesised that first time DSH may be precipitated by "state anger" in reaction to a distressing situation, whereas the repeat group may have reported more "trait anger" in response to ongoing intrapsychic and interpersonal difficulties. This would be an interesting area for future research.

Analysis of items related to intolerance of Disgust-based emotions (shame, guilt, repulsion, humiliated, blameworthy) showed that both the first time DSH and repeat DSH groups scored significantly higher than the non-DSH group. This again is an

important finding as it suggests that the tolerance of disgust may differ in self-harmers and non-self-harmers and may therefore indicate the use of specific therapeutic interventions which focus on the individual's experience of the above emotions. This finding is consistent with previous research which suggested that disgust based emotions may be particularly prevalent in self-harming populations due to feelings of self-repulsion. Interestingly, this factor did not differ between first-time DSH and repeat DSH. Again it would have been of interest to have examined whether the intolerance of disgust reported by the two DSH groups was related to different types and duration of emotion, i.e. whether, for example, repeat self-harmers have a longer history of feeling guilt, shame etc. compared to those who had self-harmed only once. Analysis of items related to the tolerance of Sadness-based emotions (i.e. despair, defeated, gloominess, mournful, misery) showed that the repeat DSH group scored significantly higher (i.e. less tolerance) than the non-DSH group. This indicates that adolescent repeat self-harmers do report greater difficulty coping with sadness than non self-harmers. Given the differences in BDI-II scores, this finding is perhaps expected. However, unlike BDI-II score, the tolerance of sadness does not significantly differ between the first time DSH group and either non self-harmers or repeat self-harmers.

No significant differences in reported tolerance of Fear or Happiness based emotions were found between the three groups, which indicates that these factors may not be specifically related to self-harming (overdosing).

Hypothesis H4: A higher degree of negative emotion coupling shall be reported in the repeat DSH group compared to both the first time DSH and non-DSH groups.

The analysis pertaining to differences in the degree of negative emotion coupling between the repeat self-harmers and the other two groups showed that the repeat DSH group scored higher than the first time DSH group, and the first time DSH group scored higher than the non-DSH group. This result is significant as it suggests that higher degrees of negative emotion coupling may be associated with repeat episodes of DSH, and may also differ between self-harmers and non-self-harmers as a whole. However, when the sub-scales were individually analysed, variations in the spread differences between the groups were found.

The extent of negative emotion coupled with Sadness showed significant differences between the non-DSH group and both first time and repeat DSH groups, with the self-harm groups reporting more negative emotion coupling than the non-DSH group. This suggests that self-harmers may have difficulty in expressing sadness as this emotion appears to be accompanied by a high degree of negative emotions. Therefore the self-harm groups have been found in this research to both report lower mood and experience more negative emotion in response to this low mood when compared to the non self-harm group. This combination of factors may therefore be of potential therapeutic significance as intervention would need to tackle both elements in order to offer sustainable benefits. There was no significant difference between the first time DSH group and the repeat DSH groups which suggests that the degree of negative emotion coupled with sadness, in isolation, may not be a factor involved in the repetition of DSH. However, as the BDI-II score was found to be

significantly higher in the repeat DSH group compared to the other groups, it appears that the combination of low mood together with the degree of negative emotion coupling may be significant in repeat DSH.

The degree of negative emotion coupled with Anger showed that there were significant differences between the repeat DSH group and the non-DSH group, with the repeat self-harmers reporting a greater degree of negative emotion coupling. This indicates that repeat self-harmers also experienced more negative emotions in response to feeling angry. However, no significant differences were found between the first time DSH group and either the repeat DSH or non-DSH group. This variable therefore does not appear to differ between those that have repeated DSH and those who have self-harmed on one occasion and so may not be significant in the repetition of DSH.

A highly significant difference was found between both the first episode DSH group and the non-DSH group and between the non-DSH group and repeat DSH group in the extent of negative emotion coupled with shame. This indicates that both first episode self-harmers and repeat self-harmers reported experiencing a greater degree of negative emotion associated with feeling shame than the non-self-harmers. This is consistent with the above finding that self-harmers also experienced more difficulty in tolerating shame-based emotions. Therefore, shame does appear to be significant in DSH and is associated with greater difficulty in tolerance and is coupled with more secondary negative emotion when compared to the non self-harming group. It is possible that the high degree of negative secondary emotion coupled with shame accounts for the increased difficulty in tolerating the primary shame emotion. However, the degree of negative emotion coupled with feelings of shame does not

appear to be associated with repeat DSH as no difference was found between the first time DSH group and the repeat DSH group.

Finally, a significant difference was found between the non-self-harmers and the repeat self-harmers in the degree of negative emotions coupled with anxiety, with the repeat DSH group reporting a greater degree of negative emotion coupling than the non-DSH group. However, no differences were found either between the first-time DSH group and either the non-DSH group or repeat DSH group. This result indicates that this variable may not be a significant factor in the repetition of DSH or in the incidence of first episode DSH.

4.5 IMPULSIVITY

As highlighted in Section 1.1.8, adolescent DSH is often impulsive and frequently triggered by arguments and disputes (Hawton & Catalan, 1987). An analysis of the distribution of the reported impulsive nature of DSH showed that more impulsive acts of DSH were carried out by the first episode self-harmers and more planned acts of DSH occurred in the repeat self-harming group. This difference in distribution, however, was not statistically significant. The distribution seen would fit with prior research which found that adolescents often begin self-harming in response to triggers such as interpersonal disputes, break up of relationships etc. From this perspective, it would be expected that first episode DSH may be more impulsive and reactionary in nature. In addition, Brown, Ebert and Goyer (1991) found that premeditation was associated with the repetition of DSH. This suggests that repetition of DSH may be associated with more severe pathology or personality style, whereby DSH is part of a habitual method of coping with daily life events and

feelings, and therefore, may be more planned or premeditated in nature. The "planned group" also reported significantly higher BDI-II scores than the "impulsive" group, which may be suggestive of greater psychopathology.

4.6 SUICIDAL INTENT

The variables in this study were examined to investigate whether they were associated with suicidal intent. As stated in Section 1.5, the lethality of the attempt is only modestly associated with suicidal intent (Hawton, 1987). Suicidal intent is also difficult to assess due to the ambivalence which is commonly seen in DSH and because reported intent may change quickly. Suicidal intent in this study was assessed by the participant's response to item 9 on the BDI-II, i.e. "*Suicidal Thoughts and Wishes*". Participants were also asked by the researcher whether they had intended to kill themselves at the time of the overdose.

Analyses investigating variables associated with suicidal intent indicated that the BDI-II score and the Emotional Discomfort sub-scale of the FDS were significantly correlated with suicidal intent. This is an important finding as it suggests that deficits in Emotion Discomfort/Distress Intolerance may be associated with higher suicidal intent and may therefore be a key target of therapeutic intervention in adolescents who are expressing suicidal thoughts and wishes.

4.7 SUMMARY OF RESULTS AND IMPLICATIONS OF FINDINGS

(i) Differences Between Self-Harmers and Non Self-Harmers

A highly significant difference was found between the two groups in the degree of reported depressive symptoms, as measured by the BDI-II. This finding is consistent with previous research. However, self-report measures of depression have been found to give an inflated estimate of the incidence of depression when compared to a clinical diagnostic interview, and may therefore be an indication of the level of subjective distress.

No overall differences between the groups were found in the degree of reported frustration tolerance, although the DSH group did score significantly higher on the Emotion Tolerance sub-scale. This sub-scale is consistent with the DBT construct of Distress Tolerance, and therefore adds support to the theory of deficits in the ability to tolerate distress in self-harming populations.

The DSH group also scored significantly higher in the degree of reported difficulty in tolerating emotion. Of particular difficulty were emotions associated with anger, sadness and disgust. This is consistent with previous theories which viewed self-harm as the self-directed channelling of intolerable emotional experience, especially where there is a history of childhood abuse or neglect. This apparent difficulty experienced in a self-harming population in tolerating emotion supports the DBT concept of Emotion Dysregulation, which is a further deficit targeted in skills training.

The degree of negative emotion coupling was found to be higher in the DSH group, suggesting that individuals who self-harm experience significantly more negative emotions as a result of feeling negative emotion, for example, guilt after feeling

angry. Although the development of such emotion coupling was not investigated in this study, this finding does suggest that underlying secondary emotion may be important in self-harm. The fostering of emotional awareness and insight forms the focus of many, especially cognitive orientated, psychological interventions such as DBT and emotion/schema focussed CBT.

A number of correlational comparisons were carried out to investigate the relationship between the variables examined in this study. This showed that the BDI-II scores were highly positively correlated with frustration and emotion intolerance. This suggests that depressive symptoms and tolerance of frustration/emotion are inter-related, although it was not possible to comment on the direction of this relationship i.e. whether depression causes deficits in tolerance or vice versa. However, it was clear that emotion tolerance and frustration tolerance were related independently of the effect of depression. This suggests that even after depression is accounted for, there continues to be an underlying deficit in a self-harming population in the ability to tolerate distress and emotion.

(ii) Differences Between Self-Harmers and Non Self-Harmers After Controlling for the Effect of BDI-II Score.

The above analyses were repeated, statistically controlling for the possible effect of BDI-II score on the reported differences between the two groups. Following this analysis, differences remained between the two groups in the self-reported ability to tolerate feelings of anger and disgust and the degree of total negative emotion coupling, particularly negative emotion coupled with shame. These findings suggest that there are particular deficits in the self-harming populations in the ability to

tolerate anger and disgust which function independently of BDI-II score. This has possible therapeutic implications, as it suggests that anti-depressant medication alone may not address these particular emotion tolerance deficits or the degree of negative emotion coupling that may be experienced. Psychological interventions which address emotion tolerance and aim to increase awareness of the individual's emotional experience e.g. underlying secondary responses to emotions, may therefore be effective in reducing the frequency of self-harm.

(iii) Differences Between Groups With and Without a Prior History of DSH.

The only variable which was found to significantly differ between the repeat self-harm group and the first episode self-harm group was BDI-II score. The repeat DSH group were found to score significantly higher than both the first time and non-DSH groups. This suggests that BDI-II score may be a potential marker for the repetition of self-harm. As stated earlier, it is not possible to state whether this population has a higher incidence of major depressive illness, or whether this elevated score is an indication of more generalised and severe psychopathology and distress. The item relating to hopelessness on the BDI-II was also analysed, and was found to significantly differ between the repeat group and the other two groups, suggesting that this may be a potential predictive factor of repeat episodes of DSH.

A number of significant differences were found between the non DSH group and the first time DSH groups. These differences are interesting as they may be important variables involved in the initiation of adolescent DSH. The first episode DSH group was found to report significantly more difficulty in tolerating anger and disgust, and also report a higher degree of negative emotion coupling.

Finally, more impulsive acts of DSH were found to be carried out by the first episode DSH group, and more planned acts of DSH were carried out by the repeat DSH group. This is consistent with the previous hypothesis that the repeat DSH group had a higher degree of psychopathology and DSH therefore had a different function in this group compared to those who self-harmed for the first time in reaction to an external event. Suicidal intent was found to be related to BDI-II score, and particularly Emotion Discomfort. This may suggest that individuals with a higher suicidal wish may be experiencing more depressive symptoms or general distress, coupled with an impaired ability to tolerate that distress.

4.8 CLINICAL APPLICATIONS AND FUTURE DIRECTIONS.

The findings of this research present a number of potentially important therapeutic implications and applications. One of the strongest findings of this research has been the substantially higher BDI-II scores of the repeat self-harmers when compared to both a clinical comparison group and those who have self-harmed on the first occasion. This suggests that the targeting of depressive symptoms, especially hopelessness, may be particularly important in reducing the repetition of self-harming. However, as discussed, previous research has indicated that depressive symptoms often rapidly decrease following an act of self-harm, which suggests that reported depressive symptoms may not always be part of a depressive syndrome and are therefore unlikely to benefit from anti-depressant medication. The finding that a number of the variables investigated in this study were highly related to BDI-II score also raises questions as to whether they are actually elements of a depressive syndrome or are artefacts of a more generalised distressed state. The high incidence

of personality disorders associated with self-harming, especially borderline personality disorder, may account for some of the differences in scoring between repeat self-harmers and the other groups. Individuals with borderline personality disorder may experience and report a high degree of depressive symptoms in response to external events or an intrapsychic mood state, although may fail to meet the criteria for a diagnosis of major depression. This possibility would influence treatment choice, as depression-focussed intervention may not address the core difficulties of people with enduring personality difficulties.

This research has highlighted possible differences between adults and adolescents who have self-harmed, in terms of the particular frustrations which are reported to be difficult to tolerate e.g. frustration relating to self-entitlement. This therefore indicates a need to be aware of developmental issues when working with adolescents who have self-harmed, as interventions which have been based on an adult population may not always be entirely relevant in an adolescent group. The sub-scale which was found to equally apply to both adult and adolescent self-harmers was that of Emotion Discomfort. This scale is consistent with the DBT construct of Distress Tolerance which is a skill focussed on in DBT skills training sessions. This finding adds supportive evidence for the role of distress intolerance in self-harm. The Emotion Discomfort sub-scale also was found to significantly predict suicidal intent, and is therefore of particular importance.

Distress tolerance skills are primarily concerned with developing an ability to accept in a non-judgemental way, both oneself and the current distressing situation, and to experience current emotional states without attempting to change them. These skills are therefore seen as short-term "crisis survival strategies" (Linehan, 1993). Four sets

of distress tolerance skills are taught in DBT. These include distraction, self-soothing, improving the moment and thinking of pros and cons. Given that this research identified a higher degree of distress intolerance/emotion discomfort in the self-harming sample, the acquisition of the skills highlighted may offer therapeutic benefits in helping adolescents survive crises without relying on self-harm. Similarly, emotion tolerance was found to be lower in the self-harming groups and is therefore compatible with the DBT theory of self-harm as reflecting a disturbance in the ability to identify and effectively regulate emotion. This deficit is targeted in the training of emotion regulation skills. The emotions which were found to be particularly difficult for self-harmers to tolerate were anger and disgust. Therefore, in terms of targeting emotion regulation skills, these emotions may be particularly salient in an adolescent self-harming group.

The degree of negative emotion coupling was found to be higher in self-harmers. This suggests that psychological interventions would need to investigate the primary, or underlying emotions that may be experienced at the same time as the more overt emotion which is being expressed. This, of course, assumes a level of conscious awareness of the underlying emotions which may not always be present in many individuals. Therefore, the use of careful and detailed analysis of emotions and triggering events may be a helpful therapeutic intervention in increasing self-awareness and in validating emotion. Chain analysis is an example of such intervention.

Emotion regulation skills in DBT aim to increase an individual's ability to non judgementally observe and describe their current emotional responses rather than terminate them through self-harming or other dysfunctional behaviours. The theory

behind emotion regulation skills is that for some individuals (especially when associated with borderline personality disorder) emotional distress is a result of secondary responses (e.g. intense shame, anxiety etc) to primary emotions and often the primary emotions are adaptive and appropriate to the situation. The reduction of secondary distress therefore requires exposure to the primary emotion in a non-judgemental atmosphere. The specific emotion regulation skills which are targeted in DBT are: (i) identifying and labelling emotions, (ii) identifying obstacles to changing emotions, (iii) reducing vulnerability to "emotion mind", (iv) increasing positive emotional events, (v) increasing mindfulness to current emotions, (vi) taking opposite action, and (vii) applying distress tolerance techniques. As stated earlier, although it is clear that not all people who self-harm have associated personality disorders, this research identified that there was an overall deficit in some of the skills which are focussed on in DBT, and these skills may therefore be helpful in a wider context. This could usefully be followed-up in future research.

Future Directions and Limitations of the Research.

It is acknowledged that the risk of committing a Type 1 error (i.e. rejecting the Null hypothesis even though it is true) can be increased through conducting multiple statistical tests of the same hypothesis. In such cases, the Bonferroni adjustment can be used to allow for the number of times the same test has been used. In order to address this issue, only one statistical test was used to examine each of the stated research hypotheses, therefore reducing the possibility of committing a Type 1 error. Multiple statistical tests were used when conducting subsequent non-hypothesis investigatory analyses, which may have increased the risk of introducing error.

However, a review of these analyses showed that a maximum of 5 tests were used on the same hypothesis, and most tests yielded a p value of less than 0.001, therefore indicating that the probability of committing a Type 1 error was small.

Due to the time scale in which this study took place, it was only possible to examine factors which were in operation on the day of the research interview. A longitudinal design would have allowed investigation of variables that may have changed over time. Perhaps the most interesting and important of these would have been to follow-up those individuals who had self-harmed for the first time at the initial research assessment and subsequently self-harmed on a further occasion. This would have allowed a more accurate prediction of whether the factors examined in this study were involved in the repetition of DSH. A longitudinal study would also have permitted examination of the course of reported depressive symptoms following discharge from hospital, and whether this affected the self-reported assessment of ability to cope with emotion and frustration.

Future process-orientated research is needed to investigate the mechanism through which psychological interventions such as DBT may influence constructs such as distress tolerance and emotion regulation. This would increase understanding of the active elements in therapy which bring about a corresponding reduction in self-harming i.e. whether it is the 1:1 time spent with individuals in weekly therapy, the validating nature of the relationship with the therapist and other group members, or whether it is the skills training itself.

Due to the vulnerable nature of the participants who had been admitted to hospital following an overdose, it was not felt appropriate to administer a wide variety of psychological measures. However, future research would usefully benefit from

including instruments such as a life events checklist, self-esteem measure, hopelessness scale and suicidal intent scale. In order to gain an indication of the degree of hopelessness and suicidal intent experienced by participants, individual items from the BDI-II were analysed, although it is acknowledged that this is not without limitations. Future research investigating the DBT construct of distress tolerance could usefully develop a measure which specifically aims to measure this ability.

It was initially anticipated that the comparison group in this research would include adolescents who had a primary diagnosis of depression but who had not self-harmed. This would have enabled a more valid comparison between self-harmers (who self-reported a high degree of depression symptoms) and a non self-harming depressed group. Such a comparison may then have highlighted differences between the groups which were not attributable to depression and may therefore have been of significance in self-harming behaviour. However, such a design was not found to be possible in this study as the majority of adolescents with a diagnosis of depression who were seen at the research sites were also self-harming. This therefore places some limitations on the conclusions that can be drawn from this study.

As stated previously, the self-reporting of depression has been found in previous research studies to give an inflated estimate of incidence. The use of the BDI-II in this study may therefore have similarly given an unreliable estimate of the incidence of depression in this sample. If resources were available, it would be have been useful and interesting for a clinical assessment of depression and personality disorder to be carried out. This would enable further analysis of factors which may be pertinent in these groups.

It would be interesting to repeat this research with different self-harming populations such as adults and elderly patients to investigate whether there are significant differences in the tolerance of emotion and frustration at different ages and whether particular emotions are more difficult to tolerate. Further investigation would also be helpful in looking more specifically at skills deficits and emotional experience in individuals with an abuse history or those with personality disorders where self-harm may be of a repetitive and chronic nature.

This research has focussed on overdosing as a form of self-harm. It would be clinically useful to repeat this study with participants who primarily engage in other forms of self-harm such as cutting and burning. Such research would provide greater understanding of the significance of frustration/emotion tolerance and depressive symptoms in other self-harming populations.

Finally, whilst this is only a pilot study, the results would appear to support the concepts used in DBT and REBT in terms of deficits in emotion regulation skills and distress tolerance skills in self-harming behaviours. To date, DBT has primarily targeted intervention at adults with borderline personality disorder who have engaged in repeated and chronic self-harm. Further research is needed to investigate the potential benefit which may be gained from DBT intervention with a general self-harm population. As DBT can be rather demanding in terms of staff resources and training, research could also investigate whether specific skills could be self-taught through the use of a self-help manual and whether this reduced the chronicity or frequency of deliberate self-harm.

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APPENDICES

Appendix 1. Emotion Tolerance Scale.

THE BASIC EMOTIONS SCALE

The purpose of this scale is to find out about how easy or how difficult it is for you to tolerate different types of emotion.
For each emotion, please circle **ONE** number only between 1 and 7, to indicate how difficult or easy you find it to cope with/tolerate that emotion.

	Very Easy						Very Difficult
ANGER	1	2	3	4	5	6	7
SADNESS	1	2	3	4	5	6	7
DISGUST	1	2	3	4	5	6	7
FEAR	1	2	3	4	5	6	7
HAPPINESS	1	2	3	4	5	6	7
FRUSTRATION	1	2	3	4	5	6	7
DESPAIR	1	2	3	4	5	6	7
SHAME	1	2	3	4	5	6	7
ANXIETY	1	2	3	4	5	6	7
JOY	1	2	3	4	5	6	7
IRRITATION	1	2	3	4	5	6	7
MISERY	1	2	3	4	5	6	7
GUILT	1	2	3	4	5	6	7
NERVOUSNESS	1	2	3	4	5	6	7
ELATION	1	2	3	4	5	6	7
AGGRESSION	1	2	3	4	5	6	7
DEFEATED	1	2	3	4	5	6	7
REPULSION	1	2	3	4	5	6	7
TENSE	1	2	3	4	5	6	7
PRIDE	1	2	3	4	5	6	7
JEALOUSY	1	2	3	4	5	6	7
GLOOMINESS	1	2	3	4	5	6	7
HUMILIATED	1	2	3	4	5	6	7
WORRIED	1	2	3	4	5	6	7
LOVING	1	2	3	4	5	6	7
RESENTFUL	1	2	3	4	5	6	7
MOURNFUL	1	2	3	4	5	6	7
BLAMEWORTHY	1	2	3	4	5	6	7
SHY	1	2	3	4	5	6	7
CHEERFUL	1	2	3	4	5	6	7

In the next part of the questionnaire we would like to know a little more about what happens when you feel certain emotions.

First of all, if you feel **SAD**, do you ever feel either at the same time or soon afterwards any of the following:

	never			sometimes			very often
ANGER	1	2	3	4	5	6	7
SADNESS (about feeling sad)	1	2	3	4	5	6	7
DISGUST	1	2	3	4	5	6	7
ANXIETY	1	2	3	4	5	6	7
HAPPINESS	1	2	3	4	5	6	7
GUILT	1	2	3	4	5	6	7
SHAME	1	2	3	4	5	6	7

If you feel **ANGRY**, do you ever feel either at the same time or soon afterwards any of the following:

	never			sometimes			very often
ANGER (about feeling angry)	1	2	3	4	5	6	7
SADNESS	1	2	3	4	5	6	7
DISGUST	1	2	3	4	5	6	7
ANXIETY	1	2	3	4	5	6	7
HAPPINESS	1	2	3	4	5	6	7
GUILT	1	2	3	4	5	6	7
SHAME	1	2	3	4	5	6	7

If you feel **ANXIOUS**, do you ever feel either at the same time or soon afterwards any of the following:

	never			sometimes			very often
ANGER	1	2	3	4	5	6	7
SADNESS	1	2	3	4	5	6	7
DISGUST	1	2	3	4	5	6	7
ANXIETY(about feeling anxiety)	1	2	3	4	5	6	7
HAPPINESS	1	2	3	4	5	6	7
GUILT	1	2	3	4	5	6	7
SHAME	1	2	3	4	5	6	7

If you feel **ASHAMED**, do you ever feel either at the same time or soon afterwards any of the following:

	never			sometimes			very often
ANGER	1	2	3	4	5	6	7
SADNESS	1	2	3	4	5	6	7
DISGUST	1	2	3	4	5	6	7
ANXIETY	1	2	3	4	5	6	7
HAPPINESS	1	2	3	4	5	6	7
GUILT	1	2	3	4	5	6	7
SHAME (about feeling shame)	1	2	3	4	5	6	7

FRUSTRATION-DISCOMFORT SCALE

NAME **DATE**

Listed below are a number of common thoughts and beliefs that people may have when distressed or frustrated. Please read each statement and circle a number to indicate how well this describes the strength of your own beliefs.

It is important to remember that you are being asked to rate how strongly you think you 'couldn't stand or bear' a discomfort or frustration, not just how much you dislike this discomfort or frustration. Therefore, 'I can't stand it' means "not only do I dislike this situation but I *also* think it intolerable or unbearable". The word 'absolutely' has been used to remind you of this wider meaning.

For example, a person may greatly dislike being unable fall asleep but only have mild, if any, 'I can't stand it' thoughts about this frustration. Therefore, even though the person may dislike the experience they would still only score 1 or 2 on the scale, since the 'I can't bear or stand it' thoughts are absent or mild. On the other hand a person may not only dislike a situation but also have strong or very strong 'I can't stand it' thoughts about that experience. They would therefore score 4 or 5.

RATING SCALE: absent = 1 mild = 2 moderate = 3 strong = 4 very strong = 5
(remember to rate the 'I can't stand it' belief not the dislike!)

1. I absolutely can't tolerate painful memories

1 2 3 4 5

2. I absolutely can't stand the stress of too many demands on my time

1 2 3 4 5

3. I absolutely can't stand having to delay getting what I want

1 2 3 4 5

4. I absolutely must be free of disturbing feelings as quickly as possible. I can't bear if they continue

1 2 3 4 5

5. I absolutely can't stand doing tasks that I'm not interested in

1 2 3 4 5

RATING SCALE: absent = 1 mild = 2 moderate = 3 strong = 4 very strong = 5
(remember to rate the 'I can't stand it' belief not the dislike!)

6. I absolutely can't stand it if people act against my wishes

1 2 3 4 5

7. I absolutely can't bear having my familiar routines disrupted

1 2 3 4 5

8. I absolutely can't bear to feel that I am losing my mind

1 2 3 4 5

9. I absolutely can't bear having to face problems

1 2 3 4 5

10. I absolutely can't tolerate being unfairly overlooked

1 2 3 4 5

11. I absolutely can't stand being prevented from achieving my full potential

1 2 3 4 5

12. I absolutely can't bear to have certain thoughts

1 2 3 4 5

13. I need the easiest way around a problem. I absolutely can't stand making a hard time of it

1 2 3 4 5

14. I absolutely can't bear it if other people stand in the way of what I want.

1 2 3 4 5

15. I absolutely can't bear the frustration of not achieving my goals

1 2 3 4 5

16. I absolutely can't stand doing things that could be upsetting

1 2 3 4 5

RATING SCALE: absent = 1 mild = 2 moderate = 3 strong = 4 very strong = 5
(remember to rate the 'I can't stand it' belief not the dislike!)

17. I absolutely can't stand doing tasks that seem too difficult

1 2 3 4 5

18. I absolutely can't tolerate criticism especially when I know I'm right

1 2 3 4 5

19. I absolutely can't bear to 'waste' time

1 2 3 4 5

20. I absolutely can't bear sad thoughts

1 2 3 4 5

21. I absolutely can't bear to experience extra problems

1 2 3 4 5

22. I absolutely can't stand doing tasks when I'm not in the mood

1 2 3 4 5

23. I absolutely can't bear disturbing feelings

1 2 3 4 5

24. I absolutely can't bear to move on from work I'm not fully satisfied with

1 2 3 4 5

25. I absolutely can't stand having to push myself at tasks

1 2 3 4 5

26. I absolutely can't tolerate being taken for granted

1 2 3 4 5

27. I absolutely can't stand doing a job if I'm unable to do it well

1 2 3 4 5

RATING SCALE: absent = 1 mild = 2 moderate = 3 strong = 4 very strong = 5
(remember to rate the 'I can't stand it' belief not the dislike!)

28. I absolutely can't stand feeling below par (e.g. due to tiredness or illness)

1 2 3 4 5

29. I absolutely can't stand the hassle of having to do things right now

1 2 3 4 5

30. I absolutely can't tolerate being treated with a lack of consideration

1 2 3 4 5

31. I absolutely can't bear to make decisions about which I'm uncertain

1 2 3 4 5

32. I absolutely can't bear to feel any sign that I'm slipping back

1 2 3 4 5

33. I absolutely can't stand the slightest hassle in my daily life

1 2 3 4 5

34. I absolutely can't stand having to give into other people's demands

1 2 3 4 5

35. I absolutely can't bear to feel that I'm not on top of my work

1 2 3 4 5

36. I absolutely can't bear to accept the past

1 2 3 4 5

37. I absolutely can't tolerate being treated with disrespect

1 2 3 4 5

38. I absolutely can't stand doing things that involve a lot of hassle

1 2 3 4 5

RATING SCALE: absent = 1 mild = 2 moderate = 3 strong = 4 very strong = 5
(remember to rate the 'I can't stand it' belief not the dislike!)

39. I absolutely can't stand how I always seem to have a raw deal

1 2 3 4 5

40. I absolutely can't stand having to persist at unpleasant tasks

1 2 3 4 5

41. I absolutely can't stand having to change when others are at fault

1 2 3 4 5

42. I absolutely can't tolerate any lapse in my self-discipline

1 2 3 4 5

43. I absolutely can't get on with my life, or be happy, if things don't change

1 2 3 4 5

44. I absolutely can't stand giving up immediate pleasures for the sake of a distant goal

1 2 3 4 5

45. I absolutely can't bear being deprived now of things I lacked in the past

1 2 3 4 5

46. I absolutely can't stand feeling tense

1 2 3 4 5

Appendix III. Participant Information Sheet.

PARTICIPANT INFORMATION SHEET

Study Title

Emotion and Mood in Self-Harm.

You are being invited to take part in a research study. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask if there is anything that is not clear or of you would like more information. Take time to decide whether or not you wish to take part.

Thank you for reading this.

(1) What is the purpose of the study ?

This study is being carried out to look in detail at what aspects of emotion and mood may be related to self-harm (e.g. intentionally taking large amounts of medicines, cutting/burning the body). It will also look at situations which may be difficult for particular individuals.

It is hoped that this will increase our understanding of self-harm and depression. This will ensure that we are offering the most effective and appropriate kind of help to people.

(2) What will I have to do ?

You will be asked to complete 3 questionnaires. The first questionnaire will ask about your mood and feelings at the current time. The second shall ask about your experiences of different kinds of emotions, and the third questionnaire will ask about what types of situations/experiences you may have difficulty with.

These questionnaires will take about 15-20 minutes to complete.

(3) Why have I been asked to take part ?

The research is taking place at the Edinburgh Royal Infirmary and the Young People's Unit between January and June, 2001. People who have come to hospital in relation to self-harm or other types of difficulties have been asked to consider participating in this project.

Participation in this research is entirely voluntary. If you decide that you do not want to take part, this will not affect your current treatment or any future treatment in any way. You are also free to withdraw at any time and without giving a reason.

(4) Will my participation in this study be kept confidential ?

All information collected as part of the research will be kept strictly confidential. Any information will have your name and address removed so that you cannot be recognised from it. Medical staff involved in your care at the Royal Infirmary will be made aware of your participation in this study.

(5) *What will happen to the results of the research ?*

The collective results shall be analysed and included in the write-up of the research. You will not be identifiable in any way in any of the research.

(6) Who is organising the research ?

The research is being carried out by Christopher Hewitt (Trainee Clinical Psychologist) as part of the Edinburgh University Clinical Psychology training course requirements. He is being supervised by Dr Louise Duffy (Clinical Psychologist) at the Royal Edinburgh Hospital. This study has been reviewed by the Psychiatry and Clinical Psychology research ethics committee.

(7) Local Independent Advisor

If required, you can also contact Mr Neil Harrington, Clinical Psychologist, as an independent advisor, to discuss any questions. He can be contacted at the following address:

Department of Clinical Psychology
Kennedy Tower
Royal Edinburgh Hospital
Tipperlinn Road
Edinburgh
EH10 5HF

Tel: 0131-5376277

Thank you for reading this and for your consideration.

Appendix IV. Participant Consent Form

CONSENT FORM

Title of Project: Emotion and Mood in Depression and Self-Harm.

Name of Researcher: Christopher Hewitt

	Consent Required	Please Tick
1	I have read and understood the information sheet and have had the opportunity to ask questions.	
2	I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason, without my medical care being affected.	
3	I understand that sections of my notes may be looked at by Christopher Hewitt, where it is relevant to my taking part in the research. I give permission for him to have access to my records.	
4	I agree to take part in the above study.	

Name..... **Date**..... **Signature**.....

Appendix V. Demographic Information Regarding the DSH and Comparison Groups.

PARTICIPANT INFORMATION SHEET (DSH)

Study Number.....

Age.....

Sex.....

Ethnic Group.....

Marital Status.....

Date of Admission.....

Time of Arrival to A&E.....

Current Employment.....

Years in Education.....

Physical Health .....

Mental Health.....

Living Arrangements.....

Nature of DSH; Impulsive/Planned.....

Any Precipitating Events to the DSH ?.....

Suicidal Intent.....

Use of a Suicide Note ?.....

Use of Alcohol at Time of DSH ?.....

Number of Previous Episodes of DSH.....

Receipt of Current Mental Health Treatment ?.....

If so, what ?.....

Receipt of Mental Health Treatment in Past ?.....

If so, was this Inpatient or Outpatient Treatment ?.....

PARTICIPANT INFORMATION SHEET (Comparison)

Study number:.....

Age:.....

.

Sex:.....

..

Ethnic group:.....

Marital status:.....

Current employment:.....

Years in education:.....

Physical health:.....

Mental health:.....

Living arrangements:.....

Date of appointment:.....

Time of interview:.....:.....

Use of alcohol in previous week: .....

Any history of DSH:.....

If so what ?.....

Have you received any mental health treatment in the past ?.....

If so, was it inpatient or outpatient treatment?.....

Appendix VI. G.P. Information Letter.

Christopher Hewitt
Clinical Psychologist in Training
Young People's Unit
Royal Edinburgh Hospital
Tipperlinn Road
Edinburgh
EH10 5HF

Date .....

Dear Dr.....

Re: .....
D.O.B.....

Emotion, Distress Tolerance and Depression in the Repetition of Deliberate Self-Harm in an Adolescent Population.

I am writing to inform you that this patient consented to participate in the above research project, which is being carried out as part of my doctoral thesis in Clinical Psychology at the University of Edinburgh. Participation in the study involved the completion of three self-report questionnaires measuring depression and the individual's ability to tolerate a range of emotions, including frustration/distress. This assessment was administered during their attendance at the Royal Infirmary of Edinburgh (Ward 1a).

Psychiatric/nursing opinion regarding their ability to participate was sought prior to their inclusion in the study. This study has been approved by the Lothian Health Psychiatry/Clinical Psychology Research Ethics Committee, and the results pertaining to your patient shall remain anonymous.

If you require any further information about the research, please get in contact at the above address.

Yours sincerely,

Christopher Hewitt
Clinical Psychologist in Training

Appendix VII. Comparison Group Information Sheet.

PARTICIPANT INFORMATION SHEET

Study Title

Emotion and Mood in Self-Harm.

You are being invited to take part in a research study. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask if there is anything that is not clear or of you would like more information. Take time to decide whether or not you wish to take part.

Thank you for reading this.

(1) What is the purpose of the study ?

This study is being carried out to look in detail at what aspects of emotion and mood may be related to self-harm (e.g. intentionally taking large amounts of medicines, cutting/burning the body) and depression. It will also look at situations which may be difficult for particular individuals to deal with.

It is hoped that this will increase our understanding of self-harming. This will ensure that we are offering the most effective and appropriate kind of help to people.

(2) What will I have to do ?

You will be asked to complete 3 questionnaires. The first questionnaire will ask about your mood and feelings at the current time. The second shall ask about your experiences of different kinds of emotions, and the third questionnaire will ask about what types of situations/experiences you may have difficulty with.

These questionnaires will take about 15-20 minutes to complete.

(3) Why have I been asked to take part ?

The research is taking place at the Edinburgh Royal Infirmary and the Young People's Unit between January and June, 2001. People aged between 16-21 years of age who are attending hospital in relation to either self-harm or other types of difficulties have been asked to consider participating in this project. In order to look at differences between young people who have self-harmed and those who have not, two groups of people have been asked to consider participating. You have been asked to participate as you have not self-harmed.

Participation in this research is entirely voluntary. If you decide that you do not want to take part, this will not affect your current treatment or any future treatment in any way. You are also free to withdraw at any time and without giving a reason.

(4) Will my participation in this study be kept confidential ?

All information collected as part of the research will be kept strictly confidential. Any information will have your name and address removed so that you cannot be recognised from it. Staff involved in your care at the YPU will be made aware of your participation in this study.

(5) *What will happen to the results of the research ?*

The collective results shall be analysed and included in the write-up of the research. You will not be identifiable in any way in any of the research.

(6) Who is organising the research ?

The research is being carried out by Christopher Hewitt (Trainee Clinical Psychologist) as part of the Edinburgh University Clinical Psychology training course requirements. He is being supervised by Dr Louise Duffy (Clinical Psychologist) at the Royal Edinburgh Hospital. This study has been reviewed by the Psychiatry and Clinical Psychology research ethics committee.

(7) Local Independent Advisor

If required, you can also contact Mr Neil Harrington, Clinical Psychologist, as an independent advisor, to discuss any questions. He can be contacted at the following address:

Department of Clinical Psychology
Kennedy Tower
Royal Edinburgh Hospital
Tipperlinn Road
Edinburgh
EH10 5HF

Tel: 0131-5376277

Thank you for reading this and for your consideration.

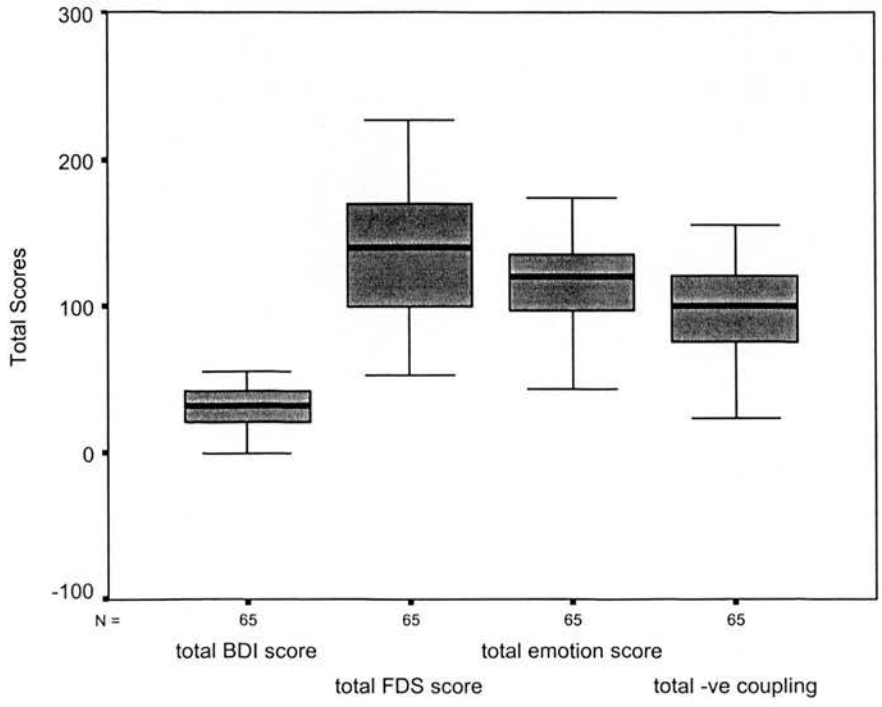
Appendix VIII. Distribution of the data across the total participant population.

EXPLORATORY RESULTS ACROSS THE WHOLE SAMPLE.

Distribution of Measure Scores across the Total Sample

Figure 3-1 illustrates the distribution of each measure score across the total participant population. This enabled the identification of any outliers in the data.

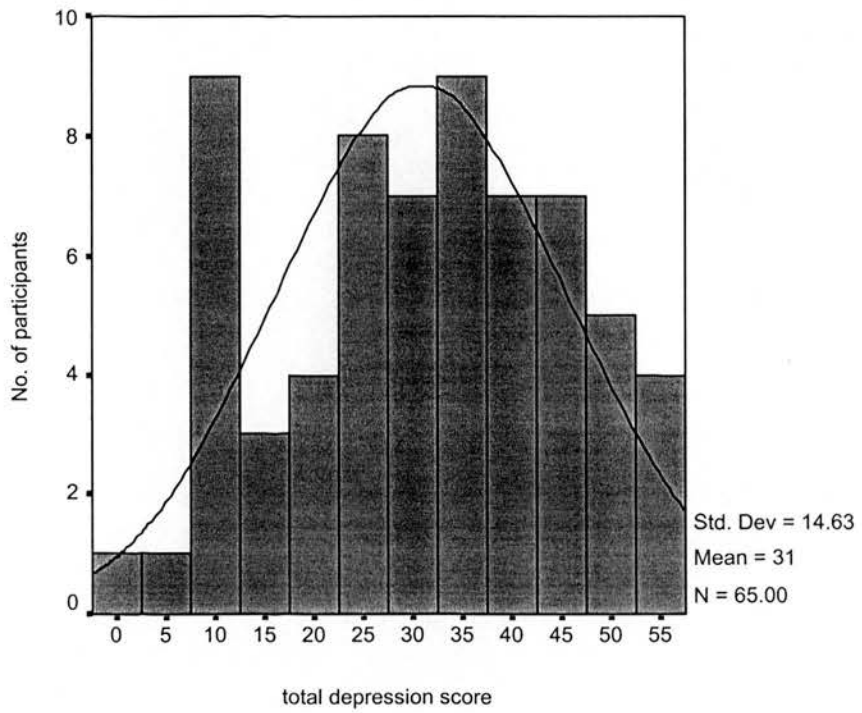
Figure 3-1 Box plots showing distribution of scores across measures



3-2 Depression

Figure 3-2 below shows the total depression score, as measured on the Beck Depression Inventory (BDI-II), across the total population. This data showed low levels of skewness (skew= -0.21, SE= 0.29) and kurtosis (kurtosis= -0.89, SE= 0.58).

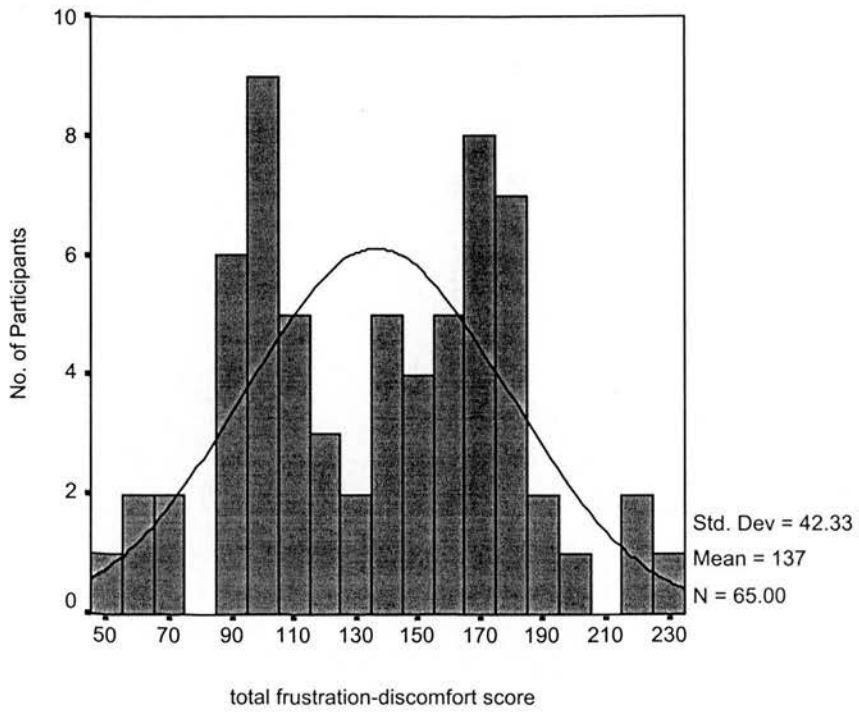
Figure 3-2: Total depression scores across the whole population (n=65)



3-3 Frustration-discomfort scale (FDS)

The frustration-discomfort scores of the total patient population (i.e. the scores of both experimental and comparison group) (n= 65) were plotted to illustrate their distribution. They showed a normal distribution with low levels of skew (skewness = 0.04, SE= 0.297) and kurtosis (kurtosis= -0.73, SE= 0.58) (Figure 3-3).

Figure 3-3: Distribution of total Frustration-Discomfort scores across the participant population (n=65).



3. 3-1 Frustration-Discomfort Sub-Scale Distributions

Each sub-scale on the Frustration-Discomfort scale (FDS) was tested for skewness and kurtosis. Figure 3.3-1 shows the distribution of each total sub-scale score. Table 3.3-1 shows the results of tests of skewness and kutosis. In summary, each sub-scale demonstrated a normal distribution with low levels of skewness and kurtosis.

Figure 3.3-1: Box-plots illustrating distribution of FDS sub-scale scores across the total participant population.

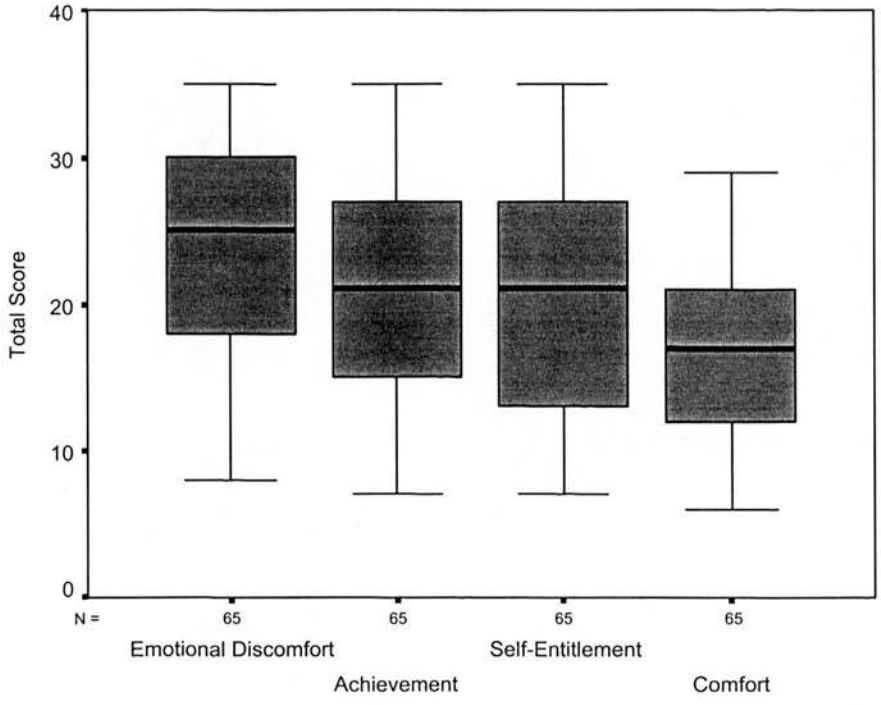


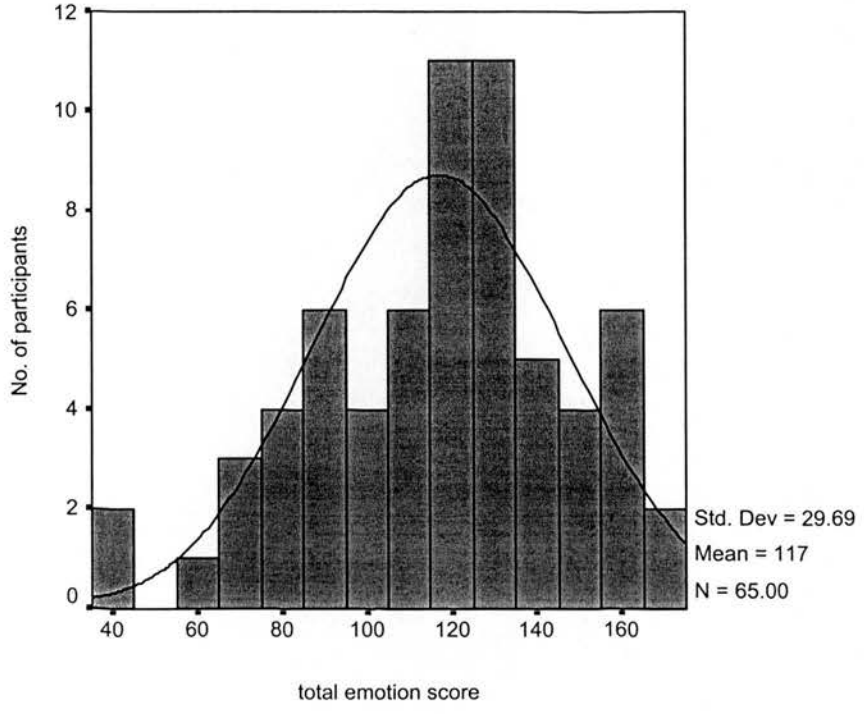
Table 3.3-1: Summary of skewness and kurtosis of sub-scale scores on the FDS

	Skewness	SE of Skew	Kurtosis	SE of Kurtosis
Emotional Discomfort	-0.36	0.29	-0.92	0.58
Achievement	-0.03	0.29	-0.91	0.58
Self-Entitlement	0.002	0.29	-1.03	0.58
Comfort	0.08	0.29	-0.72	0.58

3-4 Emotion Tolerance Scale

Figure 3-4 below shows the distribution of the total emotion tolerance scores across the total patient population (n=65). This measure demonstrated low levels of skew (skewness= -0.405, SE= 0.297) and kurtosis (kurtosis= -0.167, SE= 0.58).

Figure 3-4: Total Emotion Tolerance Scores across the total sample (n=65).



3-4.1 Emotion Tolerance Sub-scale Distributions

Each sub-scale on the Emotion Tolerance measure was tested for normality of distribution across the whole participant population. An illustration of the distribution of scores can be seen in figure 3-4.1. Table 3-4.1 gives the results of the analysis of skewness and kurtosis for each sub-scale. In summary, each of the sub-scales, with the exception of the "Happiness" sub-scale, showed a normal distribution with low levels of skewness or kurtosis. A Kolmogorov-Smirnov test was performed on the data of the Happiness sub-scale and revealed a significant deviation from normality ($z=1.40$, $df=63$, $p=0.04$).

Figure 3-4.1: Box plots illustrating distribution of Emotion Tolerance Sub-scale scores across the total participant population.

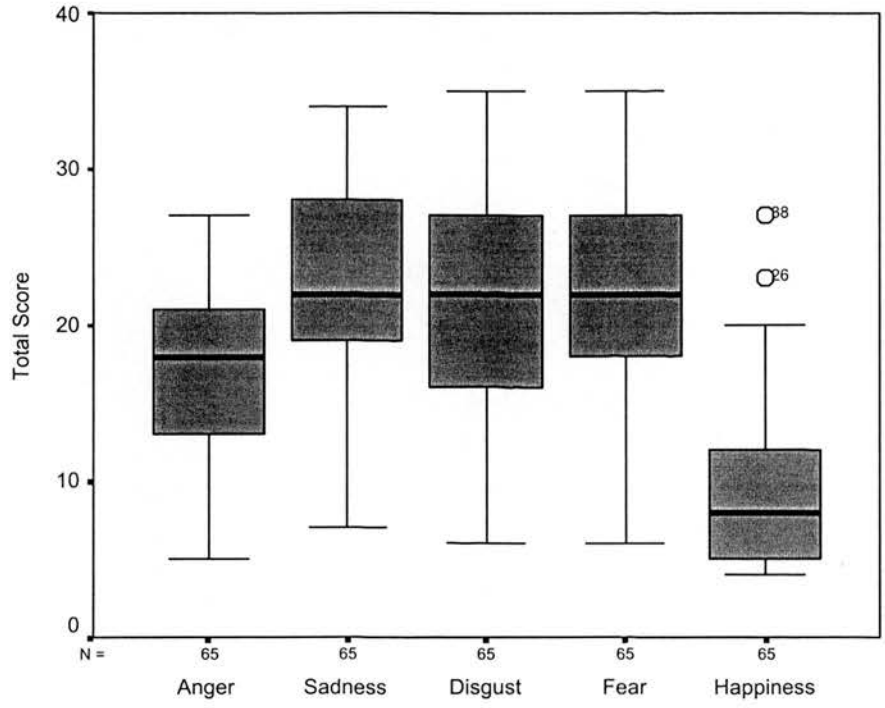


Table 3-4.1: Skewness and Kurtosis of Emotion Tolerance Sub-Scale Scores

	Skewness	SE of Skew	Kurtosis	SE of Kurtosis
Disgust	-0.275	0.29	-0.65	0.58
Fear	-0.445	0.29	-0.39	0.58
Anger	-0.11	0.29	-0.83	0.58
Sadness	-0.35	0.29	-0.39	0.58
Happiness	1.18	0.29	0.85	0.58

3-5 Total Coupled Negative Secondary Emotions

Figure 3-5 shows a box plot of the total degree of coupled negative secondary emotion scores associated with sadness, anger, anxiety and shame. This showed that there were no outliers. The data for all of the scales showed low levels of skewness and kurtosis. These are summarised in table 3-5 below.

Figure 3-5: Boxplots showing the total degree of coupled negative secondary emotion scores

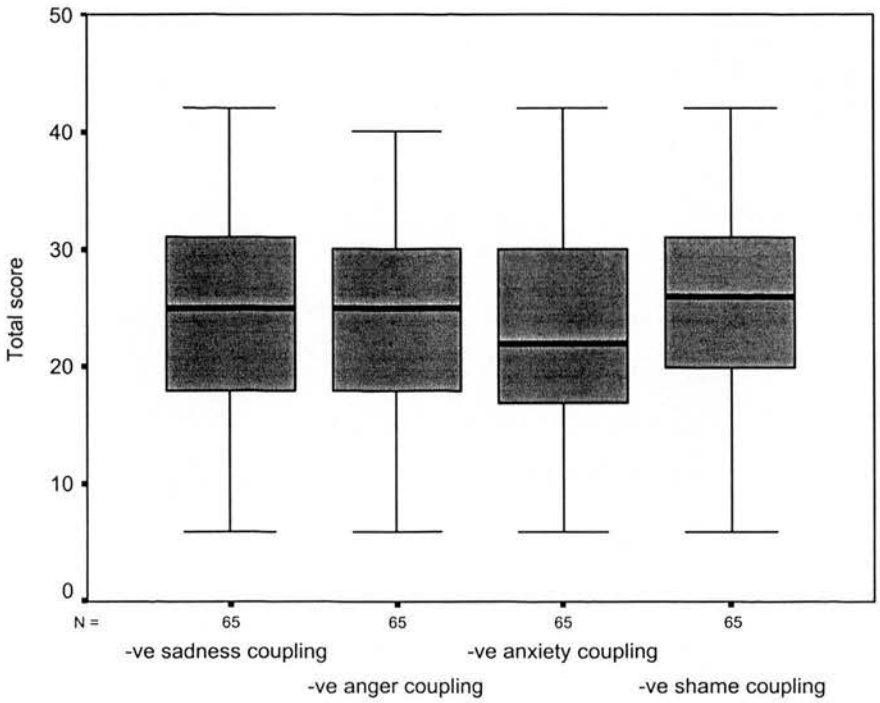


Table 3-5: Skewness and Kurtosis of negative secondary emotion score

	Skewness	SE of Skew	Kurtosis	SE of Kurtosis
Sadness	-0.41	0.29	-0.26	0.58
Anger	0.11	0.29	-0.87	0.58
Anxiety	0.07	0.29	-0.53	0.58
Shame	-0.16	0.29	-0.33	0.58